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FOUNDATIONS OF INDUSTRIAL MEDICINE.

The foundations of industrial medicine were laid about a century ago by, first and foremost, Charles Turner Thackrah and the members of the first Factory Commission, of which Edwin Chadwick was one. As a consequence of the Factory Act of 1833 a certificate was required from a surgeon, there being no birth certification and the age of employment having been limited to 9 years of age, stating that each child had been personally examined, and was of the ordinary strength and appearance of a child at that age. Thus arose, perhaps, the oldest part-time State medical service (and while thoroughly convinced of the impracticability of a whole-time State medical service I am a strong believer in a part-time one) —namely, that of the certifying factory surgeons. Unfortunately, in the next important Factory Act of 1844 the certifying surgeon's duties became stereotyped on a too narrow negative basis. Whatever the future of the service—and I do not think it is imperilled under the new Factories Bill—the duties are only likely to be made positive, as they should have been from the first, and somewhat extended ; it lies with those who are now medical students, to the number of at least 1500. Thackrah's book on "The Effects of the Principal Arts, Trades, and Professions on Health"—the result of clinical observations drawn from the West Riding of Yorkshire and Lancashire —was first published in 1831. Its reception was so successful (how different this from the sale of such a book now !) that it went into a second edition the next year. The outstanding merit of his book is that it was written by a clinician, and the claim that industrial medicine offers the greatest results for preventive medicine on the clinical side is my main theme here. It is a job for the general medical practitioner or consultant and not for the medical officer of health.

I believe Thackrah's death, at the age of 37, retarded the progress of industrial medicine and surgery for some 70 years until Whitelegge, as Chief Inspector of Factories, and Delépine in Manchester, gave fresh impetus to the subject. Had he lived his clinical experience would have emphasised the need of medical supervision in the factory and workshop by practitioners having the necessary knowledge of the home conditions of the workers and treating them for the maladies contracted at their work. While he would have welcomed the operation of the National Health Insurance Act, he would not have been content to see the workpeople streaming when ill from the factory to their panel practitioner and not to see even a trickle from the panel into the factory to try to anticipate intelligently, and check, illnesses which otherwise must form claims upon the funds.

THE MEDICAL CURRICULUM AND INDUSTRY.

While the medical student cannot fail to learn a great deal about the maladies and accidents which strike down the workpeople in common with the general population, little or nothing is done in the medical curriculum to link this knowledge up with their causes arising out of the modern factory system. I find myself thus in agreement with Sir George Newman when, referring to the examination requirements of the Conjoint Board of the Royal Colleges of Physicians and Surgeons on Public Health, he says : "There is a significant absence of all reference to some of the most vital elements of personal and public health."[1] In his list of omissions he mentions health insurance, vital statistics, factory hygiene, industrial poisoning, and the duties of the medical practitioner in respect of preventive medicine and his relationship to the sanitary administration of the country. Who could trace the vast influence of industry on health in this extract from the syllabus of instruction on public health, unchanged for 20 years, in a first-rate medical school : "Housing, effects on health of overcrowding, vitiated air and occupation," and from that on forensic medicine : "Poisons in their medico-legal aspects" ? And yet there are 24 lectures given in both public health and forensic medicine to the fourth and fifth year students.

The syllabuses might be brought more up to date so that the necessity of thinking twice on industry as affecting health might be awakened by someone competent to impart the information.

On this subject the attitude of mind towards labour is very important. While naturally all medical and surgical treatment is extraordinarily interesting as between doctor and patient, it is an individual and isolated interest, whereas industrial medicine brings in a host of new factors if only the doors of the imagination are not closed to them, as the mind has to visualize the nature of the patient's work, the materials used, and the way in which they are used.

WHAT THE MEDICAL STUDENT SHOULD LEARN.

What, then, should the medical student learn on the subject before embarking on practice ? First, he should have a working knowledge of the 11 forms of *industrial disease and poisoning* which statutorily he will have to notify should he come across any, as he certainly will do, in one of his patients. They are poisoning by lead, phosphorus, arsenic, mercury, aniline, carbon bisulphide, chronic benzene poisoning, anthrax, toxic jaundice, epitheliomatous and chrome ulceration. He should know broadly the main industries in which cases of illness and poisoning are likely to arise, their main symptoms which he will have learnt at any rate in the case of some of them from the lectures on general medicine or forensic medicine, how far they are preventable on general principles which can be applied to them on factory premises, and the manner in which they have been affected by the control to which they have been subjected since notification was required. Because medicine has had triumphs in this field as in others. And the failures would be pointed out also, as so much more can be learnt from them than from the successes. In some cases the weal or woe of an industry turns, as in the house painting industry, on the conscientious way in which the obligation to notify lead poisoning is carried out. If the cases in this industry fail to diminish, prohibition of the use of white lead paint in the internal painting of buildings will have to be enforced. The Secretary of State—he himself has said it.

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[1] Some Notes on Medical Education in England, p. 85.

working of the Act is a matter of urgency for the newly qualified practitioner. Neither his own certificate nor any certificate under the National Health Insurance Act will help the patient.

Further, the medical man is much more likely to be called on to give *evidence at an inquest* on a case due to the effects of poisonous dust, gases, or fumes than in a murder case, and the nature of the principal ones—carbon monoxide from blast furnaces, power gas and in coal mines, sulphuretted hydrogen gas, nitrous fumes, and the like—should be stressed in the teaching of forensic medicine. The dramatic side of "gassing" cases, and the means of defence against them, as, e.g., in mine rescue work, should not be excluded from the medical curriculum. I would emphasise the extraordinarily human side of the applications of physiology, engineering, and chemistry in the protection of the industrial population. The sheet-anchor, for instance, for the protection of workers against injurious dust, gases, and fumes is locally applied exhaust ventilation as near as possible to their point of origin, and against vitiated air from aggregation of persons general mechanical ventilation by means of extraction fans. The disadvantages of plenum systems of ventilation in this respect, not only for factories but for schools and public buildings, also ought to be insisted on. This system invites the air into a room and then having in its course stirred the dust up leaves it to find its way out as best it can. Extraction fans give the air a directional movement. An immense field of educational work is required to impress on factory employees Hill's dictum that moving air and not the atmosphere of the reptile-house of the Zoological Gardens—his description, not mine—is the proper one for human beings to live in.

How many medical men know that unless the employer has done everything (and everything means a good deal) the workman can do next to nothing to protect himself against the risks of his trade? No dangerous industry can be made safe to-day without bringing to bear upon it an influence or influences external to the workman—that is to say, conditions over which he can exercise no control. Examples of industries, highly dangerous 25 years ago, which have been made either safe or very much safer than they were by such means, are: (1) the lucifer match industry by the substitution of sesquisulphide of phosphorus for yellow phosphorus (achieved by the Berne Convention regulations having proved a failure); (2) the manufacture of white lead paint owing to the discovery of the greater affinity of white lead for oil than for water, so that now a suspension of white lead in water is converted into oil paint in automatic closed-in machines without the creation of any dust; (3) the pottery industry through the discovery of the late Sir Edward Thorpe, the Government chemist, that carbonate of lead can be combined with silica, &c., in such proportion as to form a glaze practically insoluble in the human body; (4) disinfection of anthrax-infected wool, as in the Government wool-disinfecting station in Liverpool, and the treatment of anthrax by serum.

Examples of influences dependent on the worker's will to use them and, therefore, useful up to a point—but no remedy—are respirators, gloves, washing accommodation, overalls, and waterproof sandpaper to try to stop the dust in dry rubbing down of painted surfaces.

Lastly, I think the medical student should receive a picture of the *causes underlying so-called industrial unrest*. And this subject can be made very interesting by tracing industry through the industrial revolution down to modern times. In doing this he could be made to realise how this country passed through a dark page in its social history, the memory of which and the fear of a repetition is at the back of the minds of all trade-unionists. This subject at first sight might be thought a little outside my sphere, but the psychology of the worker and of the employer are both very prominent to-day and must remain so for many years to come. This aspect of industrial medicine is the basis of the work of the Institute of Industrial Psychology and of that of the Industrial Fatigue Research Board, a department of the Medical Research Council. The newly qualified practitioner in an industrial area may well have to treat his patient not only for a particular malady, but also for the social and industrial conditions which memory and auto-suggestion have conjured up. And by virtue of the healing art he practises no one can unconsciously influence both employer and employed so well if the right attitude towards labour has been grounded in the medical man during his student days. He stands in a privileged position and his influence is incalculable.

[This subject was illustrated by slides of workshop conditions under the craft guilds during the industrial revolution, and of the best modern construction; also by slides of Constantin Meunier's bronzes of the miner, the glass-blower, the tanner, &c., and a picture of industrial fatigue by Degas.]

THE RÔLE OF THE M.O.H.

Is anything more than I have described necessary in the teaching of industrial hygiene under the new regulations of the General Medical Council for the Diploma of Public Health where, in Part II., it is linked up with maternity and child welfare service, school medical service, venereal disease service, tuberculosis service, and inspection and control of food as essential subjects for instruction? These, except industrial hygiene, are part of the business of the local medical officer of health, and it would almost appear as though the General Medical Council intended that the M.O.H. should become the mandarin to deal with industrial medicine despite the limitations of his office for such a task. His high position as the authority on housing makes it desirable that he should, in addition to the matters I have enumerated, know about factory construction, drainage, sanitation, water-supply, cloakroom accommodation, and be in touch with the welfare department if there is one. But let him keep hands off the clinical side inside the factory. This clinical side in the hands of the general practitioner might well be linked up with the other local public health services, but not be entirely run by the local authority. The medical officer of health has a definite rôle to protect the health of the individuals affected by influences under the control of the local authority. He has no opportunity of studying the effects of industry on living persons nor could it be made to fit in with his other duties; nor can he be expected to be responsible for the health of the population caused by matters outside the control of the local authority. A medical officer of health could not survey usefully the effects of industry from the standpoint only of his particular area. Factory administration would lose its value if handed over to officers responsible to local authorities and not to a central department.

It would never do for the medical officer of health to be called the certifying surgeon (or the "appointed doctor," as the Factories Bill has it) in the same manner as he is now designated the school medical officer. On the whole, therefore, seeing how much more than a knowledge of sanitation should be required of the medical man in the factory, I do not think the training in industrial medicine for the D.P.H. requires to be much in advance of that I should like to see given to the medical student.

A CENTRAL INSTITUTE OF HYGIENE.

There still remains, as suggested in the report of the Post-Graduate Medical Committee, the Central Institute of Hygiene to develop in the future research work and advanced teaching in all branches of preventive medicine, including as one of them industrial medicine and hygiene. Here the "distinctively high proficiency, scientific and practical," which is aimed at by the General Medical Council would be obtained by those who are going to make this their life work—the full-time industrial physicians and surgeons and a few others.

This Institute would have as an indication of the lines to pursue the experience of similar institutions already at work as, for example, the Course on Industrial Hygiene in the School of Public Health of Harvard University. The lines on which this advanced teaching at Harvard is based are: (1) applied physiology and applied psychiatry; (2) industrial toxicology; (3) industrial health administration, including welfare; (4) workmen's compensation and the legal aspects of industrial disease; and (5) practical industrial medicine.

"ETHER" CONVULSIONS.

BY S. R. WILSON, M.B., B.S. LOND., M.SC. MANCH., F.R.C.S. EDIN.,

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THREE years ago the medical board of the Manchester Royal Infirmary formed an anæsthetic committee for the observation and improvement of the anæsthetic service of the institution. I was asked to serve as anæsthetic adviser on this committee and to review with them all deaths or other unusual occurrences attributable to the action of general anæsthetics. During the year 1926 manifestations of an entirely new nature came up for consideration, and in October last I commenced an investigation as to the cause of obscure deaths occurring during ether anæsthesia and characterised by general convulsions. Towards the end of November I presented a preliminary report to the committee embodying an explanation of these unusual symptoms and suggesting various preventive measures for their elimination. The coöperation of the chemical and physiological departments of the Manchester University was also advocated in order that the accuracy of these views might be independently tested. A full account of the work done up to date has been presented to the medical board, and further investigations are still being carried on, but the results arrived at are of such great practical importance to all concerned with general anæsthetics that I decided to publish a preliminary report embodying a description of the manifestations, their causes, and prevention. In previous years the annual number of anæsthetic deaths occurring in the institution was usually nine or ten. These deaths had been easily explicable, and various precautionary measures had been adopted by the board with a view to their reduction or elimination. My report for 1926 revealed so great a departure from that of previous years that one cannot do better than quote the introductory part of it.

"From the point of view of anæsthetic casualties, the year 1926 appeared to be singularly fortunate, for in the first six months only one death occurred. The patient was suffering from acute appendicitis and the anæsthetic given was ether. It was also noted that the patient exhibited convulsions, and the surgeon present was inclined to attribute the condition to respiratory obstruction. From July to October, 1926, three more deaths occurred under ether, and in each case definite reference to convulsions was made. In fact, one can best express the state of affairs in the words of the resident surgical officer (Mr. Bryce), who concluded his report on the first case he witnessed—I have never heard any explanation as to why these convulsive attacks should occur; nor was there anything in this particular case, either before or during operation, to explain their occurrence."

The committee were of the opinion that the matter needed further explanation, and deputed me to investigate the circumstances and to submit advice as to future action.

Clinical Features.

In our own hospital four fatal cases were reported, whilst later several non-fatal cases were recorded. In one of the fatal cases a post-mortem examination was obtained. The descriptions were extremely similar, though noted by different observers. It will suffice to describe in detail the fatal case in which a post-mortem examination was made.

CASE 3.—The patient was admitted into hospital on Sept. 15th, 1926. He was a man of 21 who was suffering from acute appendicitis. Temp. 103·2° F. Induction was effected with a little ethyl chloride and ether on an "open ether" mask. Anæsthesia proceeded normally until a short time after the operation had begun when the patient became cyanosed, although the air-way was quite free. Oxygen was then given and the colour improved, but the eyelids were held open in tonic spasm. Although the patient was in a state of ordinary surgical anæsthesia twitchings of the eyelids appeared and spread to the face, arms, and legs until the whole body was in a state of generalised clonic convulsions. The movements were very severe, help being required to hold the patient on the table. The patient was slightly cyanosed and all attempts to improve the colour failed. The operation was concluded as quickly as possible, the convulsions continuing though somewhat less severely. At the end of the operation the breathing became weaker and finally ceased about 50 minutes from the commencement of the anæsthesia. The pulse failed shortly afterwards. Artificial respiration and cardiac massage were tried but without success.

Post-mortem Report.—No gross changes were found in the brain, heart, or blood-vessels. The lungs were congested and a small amount of frothy fluid exuded on pressure. The thymus was enlarged and the lymphoid tissue of the spleen and small intestine pronounced. The liver was very adherent to the diaphragm, and dense adhesions were present round the transverse colon and spleen.

The chief points brought out on analysis of the four fatal cases were:—

Age.—All were young subjects, the respective ages being 15, 14, 21, and 18 years.

Sex.—Three were males, one a female.

Disease.—Three were very definite cases of acute appendicitis with pyrexia. The other was a case of gas gangrene following a double compound fracture of the leg.

Onset.—In all cases the induction of anæsthesia appears to have been uneventful. The convulsions appeared after the actual operation had been in progress several minutes.

Duration.—Death occurred in from 40 to 50 minutes from the commencement of the anæsthetic.

Mode of Death.—Convulsions, followed by respiratory stoppage with slight cyanosis, later heart failure.

Other Remarks.—In one instance the administrator resorted to chloroform to check the convulsions. This appeared to precipitate a fatal issue. The case of compound fracture of the leg followed by gas gangrene is of interest, in that ether was given when the fracture was first set, and nothing unusual was noted throughout the administration. Three days later amputation was decided upon owing to the supervention of gas gangrene; ether was again given and this time convulsions and death supervened.

Administrators were then requested to report any non-fatal cases showing convulsions, and to preserve the ether used for analysis. Five detailed reports were received. All were males between 4 and 29 years of age and were suffering from acute appendicitis with abscess, with one exception. This latter was a middle-aged man suffering from piles. In all these cases the patient was freely ventilated with oxygen directly the convulsions appeared, and the anæsthetic discontinued or a fresh supply of ether used.

Discussion.

A detailed analysis of these cases revealed two points of the utmost importance.

1. These cases did not correspond to any known form of anæsthetic collapse.

2. That the position of ether as a practically safe anæsthetic was seriously assailed.

The two immediate problems which presented themselves for solution were: (*a*) What was the cause of death? (*b*) What was the explanation of the convulsions.

The Cause of Death.—Sudden death during anæsthesia can only be due to failure of one or other of the three systems—respiratory, cardiac, and nervous—whose continuous activity is necessary for life. All the reports presented agreed that there was no primary failure of respiration or circulation. The heart was always the last to give out and the degree of cyanosis was never excessive. The mode of death and the early appearance of convulsions point to the nervous system as the one essentially affected.

Explanation of the Convulsions.—Every single observer gave a clear and definite account of the occurrence of convulsions preceding a fatal issue. They started in the eyelids and face and gradually spread all over the body, and were not associated with any respiratory or circulatory embarrassment.

The other points brought out on analysis of the reports were: (*a*) all the patients were young subjects; (*b*) all the fatal cases and most of the non-fatal ones were already in a state of toxæmia (acute appendicitis and gas gangrene).

The constancy of the convulsions points to the nervous system as the one primarily concerned in these unusual deaths. Convulsions really signify shortage of oxygen or irritation of the nerve-cells of the central nervous system. Whilst such oxygen shortage may result from both respiratory and cardiac failure, in the cases in question there was no evidence of inefficiency of these systems. Local oxygen shortage might be due to gross cerebral lesions—such as embolism—but against this is the fact that the convulsions were absolutely generalised, and the post-mortem examination made revealed no naked-eye change in the nervous system or elsewhere which could adequately explain the condition.

In view of these facts I concluded that death was due to a *poison acting on the central nervous system*, such poison rendering the nerve-cells incapable of utilising oxygen.

Impurities in Ether.

It was clear that there was a definite relationship between the administration of ether and these effects, and yet pure ether could not be held accountable, having been in general clinical use for a matter of 70 years without any previous mention of such symptoms. It appeared probable that the poisonous effects were due to the presence of impurities, and that such impurities had either recently arisen in manufactured ether or were increased in amount by modern methods of administration or both. The former supposition was not altogether unlikely, seeing that between 1919 and 1921 various papers appeared in which it was contended that pure ether was not an anæsthetic and a tendency developed to use impure ethers on this account. Whilst such a statement was disproved by the fact that ether had been used over 50 years with satisfaction, and also by the scientific work of Dale, King, and von Leeuwen, the impression still persisted amongst practical anæsthetists.

The common impurities liable to be present in anæsthetic ethers are acetaldehyde, "peroxide," ethyl sulphide, ketones, and alcohols. The first three of these have been shown by Wesley Bourne to be toxic agents if present to the extent of ¼ per cent. or more. The first two would be likely to interfere with cell oxidation, whilst ethyl sulphide causes enteritis. The presence of these impurities in anæsthetic ether might be due to: (1) imperfect purification of the original ether; (2) gradual development of the impurities with age; (3) exposure of ether to light and air; (4) contact of ether with actinic light and oxygen.

I concluded that the unfavourable symptoms were due to the *presence in the ether of acetaldehyde or peroxide or both*, and that these impurities would be greatly increased in old-standing samples and particularly if the ether were exposed to the actinic rays of an operating theatre lamp and oxygen bubbled through it, as in a Shipway apparatus. Whilst a normal person might survive such poisoning, a patient already partially poisoned from acute toxæmia might easily succumb.

With the help of Mr. Butchers, our senior pharmacist, rough tests were made which appeared to substantiate these views. I also tested spectroscopically the glass storage bottles and the glass of the storage cupboards. The amber glass bottles were efficient, but the glass of the storage cupboards, though apparently almost black, transmitted the full spectrum, especially the actinic rays. It was also realised that a bottle might remain unused for an indefinite period, but this has been rectified by dating each bottle on delivery to the theatre. If these deductions were correct confirmation would most probably be obtained from investigation of the contents of the ether in the Shipway apparatus, for (*a*) old ether is usually allowed to remain in them; (*b*) they are constantly under the influence of the actinic lights of the operating theatre; (*c*) oxygen is being continually bubbled through them.

All these conditions would favour the development of aldehyde and peroxide. I examined the Shipway apparatus in all the theatres, and naked-eye observation revealed marked corrosion and oxidation of the metal tube. The contents were taken away for analysis.

In order to test the validity of these deductions we decided to submit samples for chemical investigation to the Chemical Department of the Manchester University and the laboratory of British Drug Houses, which was kindly placed at our disposal. No information was divulged, but various samples were put up in similar bottles labelled with identification marks known only to myself. Reports as to purity were asked for.

The first batch for analysis comprised: hospital methylated ether from stock (S); hospital methylated ether from theatre (T); contents of Shipway apparatus from one of the theatres (4); a guaranteed pure ether (B.D.H.) taken at random (5); ether from drop bottle in case of convulsions (6).

These were investigated by Prof. Lapworth and his assistant, Mr. Robinson, in the Chemical Department of the Manchester University. A summary of their report follows:—

> "Both S. and T. contain conspicuous amounts of acetaldehyde, and give a definite deposit of the double compound with sodium bisulphite. Such appreciable quantities of aldehyde should be barred. The samples also give definite tests as regards 'peroxide.' There is very little free alcohol and methyl alcohol present, but we feel the quantities are too small to prove dangerous. To summarise your samples we may say: No. 5 is in a class by itself. Traces of impurities are so slight as to be practically indetectable. S. T. 4 and 6 all give positive results as regards acetaldehyde and peroxide and we would place them as follows: S. T. 6 4. Further tests have confirmed these initial observations, and in two cases of convulsions that recovered the ether was loaded with these impurities."

We also took advantage of the offer of British Drug Houses to make use of their laboratory, for they had for some years interested themselves in the question of pure ether and were especially familiar with the "peroxide" test. The numbered samples submitted to them comprised specimens of our methylated ether from stock, from theatre stock, from an ordinary Shipway apparatus, and a sample I had personally prepared by bubbling oxygen through ether in a Shipway apparatus whilst exposed to the artificial light of the theatre for two hours. They reported that samples from stock and theatre showed 15 times the peroxide which should be present in a more or less pure ether; samples from the Shipway bottle showed 20 times as much, whilst the artificially prepared sample showed 25 times as much. The aldehydes were in excess of any commercial ether they had previously examined. Dr. A. D. MacDonald and myself have verified that acetaldehyde has a very definite toxic action in animals.

The work is still being continued, and it is my hope that there will be further communications from the departments concerned, but the results up to date afford so striking a confirmation of one's initial deductions that, with the full approval of our committee, I decided to bring them to the general notice of the profession and of those interested in ether purity.

Conclusions.

1. The convulsions referred to represent an entirely new complication of ether anæsthesia.

2. The convulsions are toxic in origin and due to the presence of impurities in the ether.

3. Acetaldehyde and "peroxide" have been definitely demonstrated to be present and afford adequate explanation of the anomalous symptoms.

4. The chemical properties of aldehyde are such as would account for these effects, for it is a powerful reducing agent, and would tend to cell asphyxia, and the subsequent formation of acetic acid would increase the H-ion concentration of the tissue fluids and equally favour convulsions. The aldehyde appears to volatilise first and the peroxide seems to favour aldehyde formation.

5. The detrimental effects of these impurities are most pronounced in patients already suffering from toxæmias.

6. In our experience the impurities were present in the ether on delivery, and were increased in amount by existing methods of ether administration.

7. It is possible that in some instances of deaths under ether in cases of acute appendicitis these toxic agents have contributed to a fatal result without the actual occurrence of convulsions. Also that post-anæsthetic vomiting is greatly intensified by their presence for, since a pure ether has been in use, there has been a striking reduction in this symptom.

8. It is not clear as to why these impurities should apparently have only appeared in toxic amounts since the beginning of 1926. Prof. Lapworth suggests there may have been some change in the method of manufacture. I am not aware of any such change, and am of the opinion that the change probably lies in the spirit used in manufacture.

9. The question of ether purity requires further investigation, and strict standard tests are required for application to all ethers supplied for the purpose of general anæsthesia.

In the meantime we have adopted certain precautionary measures. (1) Only pure ethers are to be used. (2) The ether in use is periodically tested by ourselves. (3) Exposure to light and air have been eliminated until actually in use. (4) All stale ether from the operating theatres is discarded and sent to the dispensary to be used for other purposes, such as the making of ether soap. (5) I have designed a modification of our ether vapour bottles (Shipway), in which amber glass is used to protect the ether from the theatre lights, and the metal tube which projects below the level of the ether is replaced by bone or ivory. (6) All cases showing convulsions are to be reported, whether fatal or not, and the ether in use to be preserved for analysis. Should convulsions occur the patient should be promptly ventilated with oxygen containing 5 per cent. carbon dioxide, and if more anæsthetic is required a fresh batch of ether is to be used.

In view of the importance of the condition a circular letter was sent to 24 anæsthetists in London and the provinces. Twenty-one replies were received, and I take the opportunity of thanking those who did so. Analysis of these letters revealed that five observers had direct knowledge of the manifestations; three observers had heard of them; three observers had noted convulsions in recognised epileptic patients, but all had recovered; and ten observers had no knowledge of the condition. Dr. Z. Mennell attributed the condition to deep etherisation and hyperoxygenation. Dr. F. E. Shipway was inclined to suspect the presence of impurities in the ether. Dr. H. G. Dodd suggested an association with modern methods of etherisation. Dr. C. Hadfield wrote me very fully on behalf of the Joint Anæsthetics Committee of the Medical Research Council and Royal Society of Medicine. They considered the matter one of considerable importance and requiring investigation. At the time of writing they possessed no adequate explanation. It will be noticed that our observations more or less harmonise these various views.

In conclusion, whilst we await more detailed observations from the scientific side in the public interest, a thorough reinvestigation of the question of ether purity in relation to general anæsthesia is eminently desirable.

CHOLECYSTOGRAPHY.

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THE last few years have witnessed an intensive study of the liver and biliary tract, and probably the most important discovery from the practical point of view has been that of cholecystography. Graham and Cole[1] published the first paper on cholecystography in 1924. Since then published results have proved that this is now an essential method in the investigation of the dyspepsias. Graham[2] and his associates now obtain a diagnostic accuracy of 97 per cent. by the intravenous method.

The substance that has been most generally used has been sodium tetraiodophenolphthalein, but Graham now finds that its isomeric compound phenoltetraiodophthalein gives equally good shadows in smaller doses, so that the chance of toxic effects is lessened. With the substances in use at present there are still many debatable points. There is not general agreement as to the method of administration or as to the value of certain points in the interpretation of the radiograms. The dye is administered either intravenously or orally, and Graham, after a large experience, advocates the intravenous method. The advantages of this are that it gives much denser radiograms than the oral method, and that it is more certain in its action. A known quantity of dye that is excreted almost exclusively by the liver is introduced into the circulation at a known time.

The disadvantages are: (1) as in all intravenous methods constant care must always be exercised in the preparation of the substance used and in its administration; (2) with the substances at present in use there is a slight danger of thrombophlebitis; (3) severe reactions may occur on rare occasions as evidenced by cases reported where the symptoms have been alarming.

The advantages of the oral method are that it can be given with perfect safety, and it is not necessary for the patient to be in hospital. The administration is simple, time-saving, and free from accidental dangers. The disadvantages are that the amount absorbed from the intestinal tract is not known for certainty, the rate of the absorption is variable, and certain mild toxic symptoms may occur. In our series several patients complained of nausea. In only two cases did actual vomiting occur; in one of these the capsules were vomited. As the radiograms are not as dense as those obtained by the intravenous method, their interpretation is more difficult and the percentage of positive and negative shadows of gall-stones is lower.

Graham states that cholecystography is really a means of studying the function of the gall-bladder rather than the exact pathological lesions present, and that the only two known functions of the gall-bladder are the regulation of the pressure within the biliary tract and the concentration of the contained bile. Regulation of the pressure is shown by changes in size of the gall-bladder shadow, indicating distensibility and contractility, and the power of concentration is shown by the increasing density of the shadow.

We have analysed the results obtained by cholecystography in a hundred consecutive cases controlled by operation. Many of the cases were operated upon for disease of organs other than the gall-bladder, but only those cases are included in which the gall-bladder was inspected at the operation.

Preparation and Technique.

Sodium tetraiodophenolphthalein was used in all cases, and the following was the method of administration.

On the day previous to examination the patient was kept on light diet until 9 P.M. when a meal, from which proteins were largely omitted, was given, followed by the tetraiodophenolphthalein. The amount of the dye given was that recommended by Graham—i.e., 0·06 g. per kilo of body-weight. The patient was radiographed the following day at 9 A.M., at 1 P.M., and again at 5 P.M. The capsules used in the examination were those supplied by W. Martindale.

While in many of our earlier cases undissolved capsules were seen in the colon, they were absent from this series of cases. It is probably due to the fact that the coating of the capsules at times failed to dissolve that a large percentage of error in diagnosis occurred during our early cases.

There is a small chance of the normal gall-bladder not filling when the dye is given orally. This occurred in two of our cases. We think that, with the present method of preparing the capsules, this is less likely to occur. Still there is no doubt that this failure of the normal gall-bladder to give a shadow in a small percentage of cases is one of the disadvantages of the oral method. However, we think that if the gall-bladder fails to fill, and there are no symptoms pointing to gall-bladder disease, then the test should be repeated before a definite diagnosis is made. In very fat patients failure to obtain a shadow of the gall-bladder is of little diagnostic value.

Interpretation of Radiograms.

In the interpretation of the cholecystograms we accepted as normal those in which the gall-bladder cast a dense shadow without shadows of calculi. Cases were diagnosed as pathological in which: (1) the gall-bladder did not fill; (2) positive or negative shadows of gall-stones were present; (3) the gall-bladder shadow was faint, and there was no concentration.

Analysis of Cases.

In this series of 100 cases the X ray diagnosis was correct in 89 per cent. of cases that were normal at operation, and in 94 per cent. of cases that were pathological at operation.

The gall-bladder appeared normal at operation in 47. Of these, 42 were diagnosed as normal and 5 as pathological by cholecystography. Of the five that were thought to be pathological, three filled but the shadows remained faint, and in two cases there were no shadows. In the two cases in which the gall-bladder failed to fill there was evidently some failure of absorption of the dye. In one case the gall-bladder filled normally at a subsequent examination, and in the other the gall-bladder was removed as the symptoms were suggestive of cholecystitis, but it appeared normal on macroscopic examination, contained concentrated bile, and the microscopic evidence of slight cholecystitis did not justify the X ray findings.

In 53 cases the gall-bladder was pathological at operation. The operative findings were:—

Chronic cholecystitis with calculi	48
,, ,, without calculi	2
Dilated gall-bladder secondary to carcinoma of the pancreas	2
Carcinoma of the gall-bladder	1

Of these, 50 cases were diagnosed as pathological and three as normal by cholecystography. The X ray findings were as follows:—

No shadow of the gall-bladder	42
Faint shadows of the gall-bladder	2
Positive shadows of gall-stones	3
Negative ,, ,,	2
Diffuse mottling of the gall-bladder	1
Normal shadows ,, ,,	3

In the three cases that were diagnosed as normal the gall-bladder filled, concentrated, and emptied normally. At operation the gall-bladder in each case was thin-walled and bluish and contained concentrated bile, but showed a small amount of subperitoneal fat at the fundus in two, and careful palpation revealed a few small calculi. The microscopic examination showed definite evidence of chronic inflammation. It is very unlikely that the intravenous method would help in the diagnosis of these early cases, but where the stones are larger and the gall-bladder is still functioning normally it is more likely to show the calculi as shadows. It is quite evident that the gall-bladder may be functioning normally, as judged by cholecystography, and yet may be definitely pathological.

In one case the gall-bladder was faintly outlined before administration of the dye, filled and concentrated well after the dye was given, and at operation appeared to be normal. A small percentage of gall-bladders show on the films taken before giving the dye, but the part played by disease in causing a gall-bladder to give a shadow has yet to be settled. The amount the fundus of the gall-bladder protrudes beyond the edge of the liver is certainly a factor in deciding these shadows.

Wilkie and Illingworth[3] report a case in which the correct diagnosis of a pathological gall-bladder was made from the deformity of the cholecystogram. Hurst[4] states that cholecystography is a very useful means of confirming the presence of gall-bladder tenderness, and of deciding if the tenderness is confined to the visualized gall-bladder. When the dye is given orally, although the radiograms may show quite dense shadows, we have not found screen examination to be very satisfactory.

Cases with Jaundice.

Contrary to what has been stated, we have found cholecystography to be of value in cases with jaundice. In three cases of catarrhal jaundice, not included in the above series, the gall-bladder filled and concentrated well. The diagnosis was confirmed by the subsequent course of these cases. Likewise, in a case of biliary cirrhosis with marked jaundice, and in a case with jaundice due to secondary deposits in the liver, the gall-bladder filled normally. In cases with obstruction of the common bile-duct the gall-bladder invariably fails to fill with the dye. When the obstruction is due to carcinoma of the common bile-duct or of the pancreas, the gall-bladder, although still functioning, is so distended with thick tarry bile that not sufficient dye is carried to the gall-bladder to give a shadow.

Emptying of the Gall-bladder.

Various substances have been used to cause emptying of the gall-bladder. Food of any description will cause the gall-bladder shadow to become less dense. Fats act more quickly than proteins or carbohydrates. We have tried various substances, and have found olive oil to be very effective; 2 oz. of olive oil at times causes a dense shadow to disappear in 30 to 50 minutes. If the gall-bladder gives a shadow at the second examination we now give 2 oz. of olive oil and make the third examination one hour later. However, as with all other substances we have tried, the time taken to cause the shadow to disappear has varied widely in different cases. This is particularly marked with pituitary extract. From the emptying power of these substances, so far, we have not been able to draw any deductions that are reliable in making a diagnosis. Their use in estimating the pathological condition of the gall-bladder has yet to be worked out.

We have found that strenuous exercise has, at times, a definite effect in emptying the gall-bladder. For this reason we have advised out-patients to take as little exercise as possible between the time of administration of the dye and the completion of the

examination. Sosman, Whittaker, and Adson[5] state that, although olive oil caused emptying of the gall-bladder in dogs, in man it had no effect, and that no effect was produced by exercise. They showed, experimentally, that an intact sphincter of Oddi is necessary to obtain a normal cholecystogram.

Density of the Radiogram.

The power of concentration possessed by the gall-bladder is shown by the density of the shadows, the variations in the power of concentrating the dye are difficult to interpret, and the deductions to be drawn must be founded on experience. The diagnostic value of this point is still unsettled, but as a single fact it is not sufficient to warrant a definite diagnosis. Certainly failure to concentrate is of little value in the diagnosis of a pathological gall-bladder when the dye is given orally. In the five cases in which the shadows were faint, the gall-bladder was normal in three and pathological in two at operation. We now consider poor concentration simply as an indication that the test should be repeated orally or preferably intravenously.

The late appearance of a shadow with the oral method is apparently of no diagnostic value. In one case the shadow was first seen 15 hours after the dye was given; three hours later normal concentration had taken place, and at operation a normal gall-bladder was found.

The Pathological Gall-bladder.

The chief difficulty seems to be to decide when a gall-bladder is pathological. The type of bile in the gall-bladder may be of assistance in arriving at a diagnosis, but it is not uncommon to find concentrated bile in a definitely pathological gall-bladder. The appearance of the gall-bladder at operation may, on rare occasions, be misleading. In one case the gall-bladder looked perfectly normal, but was found to contain a few minute stones and was definitely abnormal on pathological examination. Some gall-bladders appear normal even after removal, but are found to be abnormal on pathological examination. How far is the pathologist's report of a diseased gall-bladder to be accepted as a justification for the removal of an apparently innocent-looking gall-bladder? What percentage of normal-looking gall-bladders would be pathological on microscopic examination? These questions will always influence the statistics on diagnosis by cholecystography. Certainly the symptoms are no indication as to the stage of the disease. In two cases where gall-stones were found at operation no symptoms could be attributed to the diseased gall-bladder.

Conclusions.

1. Cholecystography after the oral administration of sodium tetraiodophenolphthalein gave a correct diagnosis in 92 per cent. of cases controlled by operation. 2. A faint shadow of the gall-bladder after giving the dye on one occasion does not warrant the diagnosis of a pathological gall-bladder. 3. Early cases of cholecystitis may give normal shadows. 4. Occasionally a normal gall-bladder may fail to give a shadow. 5. In out-patients only the results of those showing a normal shadow or stones are to be accepted. The others need further investigation as in-patients.

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ACUTE INFECTIVE OSTEOMYELITIS.

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ALTHOUGH histologically identical, there are two types of acute osteomyelitis which differ essentially in their origin, clinical course, prognosis, and treatment. These may be classified (*a*) osteomyelitis traumatica, (*b*) osteomyelitis symptomatica.

(*a*) *Osteomyelitis Traumatica.*

This occurs as the result of trauma, the infection reaching the bone from without and the organisms being foreign to the individual. It is seen in connexion with street accidents, severe crushes, and the like, and it was seen to good advantage during the Great War. It was during the war that its pathology became better understood and its present-day treatment founded. In connexion with it the following points are important: (1) the extent of damage to the bone and soft parts, (2) the extent of hæmorrhage occasioned, (3) the degree of shock, (4) the general condition of the individual at the time of the accident, (5) the virulency of the infection.

Of all the long bones injuries involving the femur are the most serious. If the general condition of the individual prior to the accident is poor, and if considerable hæmorrhage and shock have occurred, it is amazing how rapidly a general septicæmia can develop. Infection under these conditions is productive of septic infarcts in the lungs, spleen, and other deep organs, and suppurative pericarditis is not an uncommon complication. Septic infarction of the skin (fixation abscess) is extremely rare, whereas pyothorax, following upon infarction of the lung, is not uncommon. Cultures taken from the pleural exudation have given invariably a luxuriant growth of organisms. It may seem strange that organs like the spleen, lungs, and kidneys, which are so richly supplied with blood, should be singled out for infective infarction, but it is understood when we consider that the patient is suddenly infected with foreign organisms against which he possesses no immediate immunity at a time when shock is extreme and when a considerable hæmorrhage has taken place. Further, damaged tissues under these conditions allow of rapid bacterial proliferation locally.

Treatment is (1) resuscitative, (2) operative. Resuscitation must always precede operation, for it is useless to operate upon any patient during an interval of shock. In every instance in which shock is pronounced and hæmorrhage has occurred direct blood transfusion should be undertaken. This must be carried out at the earliest possible moment after the accident. It is a useless expedient if left until a virulent septicæmia has established itself. Heat should be applied, subcutaneous saline and stimulants in the form of warm drinks given, and a careful watch maintained for a rising blood pressure and a reactionary hæmorrhage. The fractured limb, meantime, must be immobilised and kept elevated. Operative treatment aims at a complete excision of all bruised and devitalised tissue with removal of the damaged portion of the bone. This is carried out preferably under open ether anæsthesia. While resecting the damaged bone, the periosteum as far as possible must be spared. The limb is now replaced on a Thomas splint and a Carrol Dakin dressing applied. Provided the wound remains clean, a bone-graft may be inserted to replace the resected portion. The wound need not be absolutely sterile for this undertaking, but it should be free of streptococci and spores, whose absence can be determined by repeated examination of the wound discharges. Antitetanic serum should always be given together with polyvalent antistreptococcic serum. An autogenous vaccine is often of use, because the patient is without an initial immunity to the infection.

(b) Osteomyelitis Symptomatica.

This is most commonly a disease of children and young adults. The onset, which is preceded by an interval of malaise and pyrexia, is often associated with a sore-throat or occurs during convalescence from one of the exanthems, notably scarlet fever and measles. Speaking from a careful study of over 40 cases in children, both bacteriological and clinical, there is abundant evidence to prove that the disease is only a symptom of a general septicæmia. The bones most commonly singled out for infection are the femur and tibia, both weight-bearing bones, and so more subject to jars and knocks. The distal ends of the diaphyses of these bones are the common sites for the initiation of the infection.

Pathologically, the disease consists in an acute infection of both the bone-marrow and the compact bone surrounding it. The infection may become localised and thus analogous to an ordinary acute abscess elsewhere, or it may become diffuse and involve the entire medullary cavity, in which case it is an acute cellulitic condition. The inflammatory process spreads outwards along the Haversian canals and reaches the periosteum, which strips easily from the bone, but does not readily lose its vitality. The extent to which the periosteum so strips is an accurate indication of the involvement of the medulla and compact bone. Not only does the periosteum retain its vitality, but the endosteum also, important facts to be borne in mind when considering the subject of treatment. Osteomyelitis that has become localised will often settle down without active surgical treatment, indeed the condition often passes unrecognised and is treated as rheumatism. In such circumstances a small abscess cavity containing organisms of low virulence remains and becomes surrounded by dense bone (Brodie's abscess). The favourite sites for these abscesses are the distal ends of the femoral and tibial diaphyses. In future debilitating illnesses these abscesses are prone to become active and may give rise to a diffuse osteomyelitis, or by bursting into a neighbouring joint they may set up an acute septic arthritis.

Pain at the site of infection, usually the knee or ankle, is the early symptom. The pain may early leave the neighbourhood of infection and migrate to the region of other joints, which may become hot, red, and tender, hence the condition at first is very apt to be confounded with acute rheumatism. Later pus forms, which may find an exit from the bone, and either come to the surface or burrow in between the muscles of the limb. Should the complete medullary cavity be involved in a cellulitis, the whole limb is exceedingly painful, and constitutional symptoms are more severe. Light percussion over the bone involved causes intense agony to the patient. From the very beginning symptoms of septicæmia are present. The temperature is high and remittent, rigors occur, and the patient is often delirious. Common accompaniments are a coarse tremor and picking the nose and face until they are raw. Sordes may be present on the lips and teeth, but the tongue is usually clean and the patient takes liquid nourishment well.

Subcutaneous pressure abscesses (fixation abscesses) are common and a bacteriological investigation of their contents gives a clue to the prognosis. Thus: (1) sterility of the abscess with well-staining leucocytes is of good prognosis; (2) mild infection calls for a guarded prognosis; (3) virile infection with degenerate leucocytes is of bad prognosis. Remarkable, and in strong contrast with the traumatic type, is the absence of deep infarction. It occurred in one of my cases only (the spleen), and this case is of such interest in showing the difficulty of early diagnosis that I will relate it briefly.

R. P., male, aged 10 years, after a period of malaise was seized with pain in his left knee which became swollen and tender. The pain left the knee and affected several other joints in turn. The temperature was high and the condition was treated as acute rheumatism, which it closely mimicked. On the fourth day the patient complained of acute pain in the abdomen, the tenderness limiting itself to the lower right abdominal quadrant. At this stage I saw the patient with Dr. Frank Anderson, of Stanningley. We diagnosed acute appendicitis, and although there was some swelling just above the left knee-joint a laparotomy was undertaken. There was a considerable quantity of turbid flakey fluid free in the peritoneal cavity but the appendix was not at fault. The spleen, however, was enlarged. A septic splenic infarct accounted for the abdominal condition. An exploring needle revealed pus just above the knee-joint and an incision proved the condition to be osteomyelitis starting in the lower end of the diaphysis. Despite every care the knee-joint became infected. The patient, owing to the pain and his general infection, started to go down hill. Amputation through the middle third of the thigh was undertaken, and pus was observed to come from the bone-stump. After a protracted convalescence the patient recovered and is alive and well to-day. The temperature settled only some weeks after amputation, and numerous skin abscesses appeared showing bacteriologically scanty growth on agar. The last skin abscess to appear was sterile. The infection was streptococcal.

The natural tendency of symptomatic osteomyelitis is towards recovery. Pyrexia may continue for weeks or months, and the patient may become reduced to skin and bone, still the tendency is towards recovery. It has often amazed me how a child can stand up to and fight a septicæmia of this kind, and it is a condition therefore in which hope should never be lost.

In this series of cases the following were of good omen: (1) ability to take nourishment and digest it; (2) sterility of fixation abscesses; (3) the ready healing of fixation abscesses after bursting; (4) a clear mentality and ability to sleep peacefully; (5) absence of albumin in the urine.

Of bad omen are: (1) hæmorrhage from the vessels around the neighbouring joint; (2) virile infection of fixation abscesses; (3) sluggish indolent appearance of the tissues after the abscess has burst; (4) delirium, anorexia, and inability to sleep; (5) presence of albumin in the urine.

Treatment is that of septicæmia. The less that is done surgically the better. If pus has found an exit from the bone, I have been content to make an incision for its evacuation and have gone no farther. If the inflammation is confined within the medullary cavity and there is no exit (diffuse osteomyelitis), an incision down to the bone with removal of a limited portion of its compact layer is all that is necessary. Under no consideration should the medullary cavity be curetted, because valuable and necessary tissue is removed and the endosteum is destroyed. Curetting is analogous to removing the subcutaneous tissue in an acute cellulitic condition of the soft parts.

Amputation is called for (1) when uncontrollable hæmorrhage occurs in the region of a joint; (2) when a large joint, specially the knee, becomes infected and pain is militating against the patient's chances of recovery. I performed amputation in only two of my cases for the above-mentioned reasons. The result was an immediate improvement. I do not think, however, that the improvement came about as a result of removing infected tissues. It was rather the result of removal of the pain of an infected knee-joint in one case and the arrest of hæmorrhage in the other. Further, the removal of a limb under these conditions means a saving of energy to the defensive mechanism of the body generally. In view of our knowledge of the pathology, resection of the infected bone for symptomatic osteomyelitis is unsound treatment. This is one of the main points of difference between the symptomatic and the traumatic type. Good food of a nourishing type, and patients can take and digest it, plenty of fluids, and occasional small doses of calomel are the main essentials.

Summary.

Of 40 cases of the symptomatic type on which this article is based, there have been four deaths—that is, a mortality of 10 per cent. Twenty-five cases occurred in males and 15 in females, or the disease in this series is nearly twice as common in the male sex. Of the bones infected, the femur was involved in 16, and all

four deaths were associated with infection of this bone, two involving the upper diaphysis and the hip-joint, and two the lower diaphysis, one involving the knee-joint. Of the remaining 24 cases, five involved the proximal site of the diaphysis of the tibia, and ten were confined to the distal site. Thus 31 out of 40 cases involved the bones of the lower extremity—i.e., 75 per cent. The remaining nine cases involved the humerus in five, the radius in two, and the ribs in two.

Osteomyelitis Traumatica.	*Osteomyelitis Symptomatica.*
1. Brought about by trauma and infection from without.	1. A symptom of an existing septicæmia.
2. No initial immunity to organisms of infection.	2. Infecting organisms are patient's own organisms, consequently there is an existing degree of immunity.
3. Septic infarction of vital organs and absence of fixation abscesses in the subcutaneous tissues.	3. Absence of deep infarction and presence of superficial fixation abscesses.
4. Septicæmia is secondary.	4. Septicæmia is primary.
5. Early operative treatment essential.	5. Conservative measures demanded.
6. Shock and hæmorrhage necessitating resuscitation prior to operation.	6. Absence of shock and primary hæmorrhage.

AN ATTEMPT TO ISOLATE *BACTERIUM PNEUMOSINTES* FROM PATIENTS SUFFERING FROM INFLUENZA.

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Olitsky and Gates [1] and Gates [2] have described the isolation of a minute, anaerobic, Gram-negative cocco-bacillus, capable of passing through a Berkefeld N or V candle, from the nasopharyngeal washings of patients suffering from clinical influenza. The nasopharyngeal washings, which as a rule proved virulent only during the first 36 hours of the disease, gave rise on intratracheal injection into rabbits to a syndrome of fever, mononuclear leucopenia, and conjunctivitis; when killed, usually after two days, the animals showed pulmonary lesions consisting of emphysema, œdema, and hæmorrhages. The organism was cultivated directly from the filtered nasopharyngeal washings of influenza patients, but more frequently and with greater success from the ground-up lungs of rabbits that had been injected with these washings. Primary cultures were obtained in Smith-Noguchi medium, but later the organism was cultivated anaerobically on blood-agar plates, in coli-broth, and on certain other media. Suitable suspensions of the organism, which they call *Bacterium pneumosintes*, were agglutinated, generally to a titre of 1–10, by the serum of a number of patients that had recovered from influenza from ten days to five months previously. The findings of Olitsky and Gates have been partially confirmed by a number of other workers (for references see Gates [2]), but the evidence that this organism is in any way causally connected with the production of influenza in human beings is unsatisfactory.

Influenza in Manchester, 1927.

During the first quarter of the year there was an outbreak of influenza in this country. To illustrate the progress of the disease in Manchester the influenzal deaths and reported cases of influenzal pneumonia are given as follows.

1927. Week ending—	Influenza deaths.	Influenzal pneumonia cases.	1927. Week ending—	Influenza deaths.	Influenzal pneumonia cases.
Jan. 8	4	8	Feb. 26	88	110
„ 15	9	6	March 5	70	96
„ 22	8	7	„ 12	58	58
„ 29	8	9	„ 19	26	18
Feb. 5	7	9	„ 26	9	17
„ 12	13	28	April 2	10	9
„ 19	34	47	„ 9	6	11

It will be seen that the height of the epidemic was reached during the last fortnight of February and the first fortnight of March. The usual symptoms in typical cases of the disease were chilliness, fever, headache, prostration, pain in the back and limbs, suffusion of the conjunctivæ, sore-throat, and later tracheitis. After 3 to 14 days or so the attack subsided, leaving the patient weak and listless. Numerous abortive cases lasting only 24 or 48 hours occurred.

In this laboratory about half of the staff was attacked. Most of the cases occurred during the first three weeks of February, so that by the time influenza was rising to its maximum in the city as a whole the laboratory epidemic was practically over.

Experimental Work.

During the progress of the epidemic an attempt was made to cultivate *B. pneumosintes* from the nasopharynx of influenza patients.

The technique adopted was as closely similar as possible to that described by Olitsky and Gates. Briefly, it was as follows:—

After preliminary cleansing of the mouth, each nostril was washed out with 25 c.cm. of sterile saline, the fluid being returned through the mouth and collected in a sterile bottle. The washings were shaken with glass beads for 20 minutes, and 1·5 to 3·0 c.cm. were injected intratracheally under ether anæsthesia into young rabbits weighing 1000 to 1500 g. After two days the rabbit was killed by one blow on the back of the neck, and under strictly aseptic precautions the lungs were removed to a sterile Petri dish. After examination of the macroscopic appearances, one of them was cut into fragments, ground up with sterile sand in a mortar or a Griffith's tube, and suspended in a small quantity of saline; 1 c.cm. of this suspension was then seeded into one or more tubes of Smith-Noguchi medium, and aerobic cultures were made on to blood-agar and Fildes agar slopes. If the lungs appeared at all suspicious, 2·0 to 3 c.cm. of the suspension were injected intratracheally into a fresh rabbit. In addition portions of the lungs were reserved for section, and portions were transferred to 50 per cent. glycerol for further study if necessary.

The Smith-Noguchi medium was made up with pure untreated ascitic fluid to which 1 per cent. of dextrose had been added; a large piece of rabbit's kidney was placed at the bottom of the tube, and the whole was covered with a layer of vaseline 1 c.cm. deep; the tube was further sealed with a paraffined cork. After two or three days in the incubator anaerobic conditions were established, as was shown by the progressive decolorisation from below upwards of methylene-blue added to a control tube. In order to obtain a satisfactory degree of anaerobiosis, all tubes, therefore, were incubated for three days before inoculation.

The pure ascitic fluid had a reaction of pH 8·2, but that of the finished medium was about pH 7·4—a reaction which, according to Olitsky and Gates,[3] is very favourable for the growth of *B. pneumosintes*.

Direct cultivation of the nasopharyngeal washings was attempted on only two patients; prior to seeding into Smith-Noguchi medium the washings were filtered either through a Mandler or a Chamberland L 2 candle (Berkefeld N and V candles were unobtainable); 1 c.cm. of the filtrate was used as the inoculum. In the animal experiments with one exception, in which an L 2 candle was used, all cultures were made from unfiltered lung suspensions.

The Smith-Noguchi tubes were incubated at 37° C. for ten days. Subcultures were then made into fresh tubes of the same medium, and on to two lots of blood-agar or Fildes agar slopes, one lot of which was incubated aerobically and one lot anaerobically in a modified McIntosh and Fildes jar. Anaerobic subcultures were also put up in coli-broth.* This procedure was repeated twice after intervening periods of ten days. Altogether, therefore, four Smith-Noguchi tubes were inoculated in series, and subcultures made from each into blood-agar or Fildes agar, and coli-broth.

One of Olitsky and Gates's original strains of *B. pneumosintes* was kindly sent to us by Dr. David Thomson. This organism grew very well under anaerobic conditions in Smith-Noguchi medium, on blood-agar, and Fildes agar slopes, and in coli-broth. We inoculated it on to every batch of medium prepared, and incubated these cultures along with

* Coli-broth was prepared by growing a strain of *B. coli* in 1 per cent. dextrose broth; as soon as the first sign of turbidity appeared, the flask was removed from the incubator and steamed for half an hour. In this medium under anaerobic conditions *B. pneumosintes* formed a moderate to dense turbidity in seven days.

those from our experimental material to make sure that the conditions for growth were satisfactory. Every one of these control cultures grew excellently.

Seven patients were examined, all in the first 24 hours of the disease. On four occasions the injections were made into rabbits within an hour of washing out the nasopharynx, on two occasions (patients 5 and 7) between four and seven hours, and on one occasion (patient 3) not till the washings had stood in the ice-chest overnight.

Results.

Before giving in detail the bacteriological examination of each patient, a few general remarks are necessary. First of all we have paid very little attention to changes occurring in the Smith-Noguchi cultures. Every one of these tubes—even uninoculated control tubes—showed a varying degree of turbidity on incubation. We were unable to convince ourselves that this was in any way dependent on the multiplication of a living micro-organism. This seems to have been the experience of other workers.[4] Secondly, after examining these tubes microscopically, we came to the conclusion that staining methods were unreliable for demonstrating organisms as small as *B. pneumosintes*. It was not possible with certainty to distinguish between uninoculated control tubes and tubes in which a known strain of this organism was growing. Unless actual colonies can be obtained on a solid medium, or a marked turbidity in a clear fluid medium such as coli-broth, we consider that the demonstration of this organism has not been satisfactorily accomplished.

Olitsky and Gates laid stress on the development of conjunctivitis, a rise of temperature, and a mononuclear leucopenia in inoculated rabbits, and on the changes in the lungs at post-mortem examination. None of our rabbits showed conjunctivitis. Leucocyte counts were made only on the first two rabbits; both of these showed a well-marked mononuclear leucopenia. Counts on the other animals were rendered impossible owing to the pressure of routine work. Temperature charts were kept for some of the animals, but in view of Purdy's work [5] it did not appear that any but marked variations could be regarded as significant. It may be pointed out that in the protocols given by Olitsky and Gates the rise of temperature was rarely more than 1° C. The lung lesions described by Olitsky and Gates were never observed. Most of the rabbits showed marked congestion of the trachea, and a few scattered hæmorrhages beneath the pleura. But these did not appear different from those observed in normal rabbits killed by a blow on the back of the neck.[6] In two or three rabbits a localised fullness of the lung was noticed macroscopically, and in these a second rabbit passage was performed—always without result.

Though realising the importance of studying the reaction of the rabbits to injection, we felt it still more important to concentrate our efforts on the actual cultivation of *B. pneumosintes*. In these efforts we failed completely; from not a single patient did we succeed in isolating this organism.

CASE 1.—Feb. 1st. Laboratory attendant. Typical attack lasting four days. Pneumococcus and Pfeiffer bacillus recovered on direct culture from N.P. (nasopharyngeal) washings. Two rabbits inoculated in series from N.P. washings. All cultures, aerobic and anaerobic, sterile.

CASE 2.—Feb. 18th. Clerk. Typical attack lasting 14 days, similar to that in 1918. β-hæmolytic streptococcus, pneumococcus, and Pfeiffer's bacillus recovered on direct culture from mouth washings. N.P. washings filtered through L 2 candle and seeded into S.N. (Smith-Noguchi) medium. All cultures sterile. N.P. washings injected into a rabbit. Lung suspension filtered through L 2 candle; all cultures sterile. Second rabbit inoculated in series. Lung suspension not filtered. All cultures sterile.

CASE 3.—Feb. 22nd. Student at laboratory. Typical attack lasting four days. One rabbit inoculated. Aerobic cultures sterile. Staphylococcus grown from third subculture in S.N. medium. Cultures discarded.

CASE 4.—Feb. 22nd. Laboratory staff. Typical attack, lasting a week. Pneumococcus and Pfeiffer's bacillus recovered on direct culture from N.P. washings. Two rabbits inoculated in series. From S.N. cultures of first rabbit a pneumococcus was isolated. All cultures from second rabbit proved sterile.

CASE 5.—Feb. 23rd. Housewife. Typical attack lasting five days. One rabbit inoculated. All cultures sterile.

CASE 6.—Feb. 25th. Laboratory staff. Typical attack lasting nine days. One rabbit inoculated. All cultures sterile.

CASE 7.—March 2nd. Nurse. Typical attack lasting five days. N.P. washings filtered, and seeded into S.N. medium. All cultures sterile. Unfiltered N.P. washings injected into one rabbit. Diplo-streptococci isolated from first S.N. tube. Cultures discarded.

Agglutination Experiments.

Olitsky and Gates demonstrated the presence of agglutinins—generally at a titre of 1/10—in the serum of 17 out of 19 persons who had recovered from clinical influenza ten days to five months previously.

We prepared a serum against a known strain of *B. pneumosintes* by repeated injections of a rabbit with washed, killed organisms from a culture in coli-broth. The agglutinating antigen was made up in the way described by Olitsky and Gates,[7] using Northrop and de Kruif's buffer solution at pH 6·3. Experiment showed, however, that a more agglutinable antigen could be obtained by adding 0·25 per cent. formolised saline to coli-broth cultures and heating to 60° C. for half an hour, or by suspending the centrifuged and washed bacilli in 0·5 per cent. phenolised saline.

We tested the serum of 35 persons in the laboratory against a formolised broth culture of *B. pneumosintes*. Of these 16 had suffered from clinical influenza 4 to 11 weeks previously; the remaining 19 had not had influenza for at least one year. The tests were read after 18 hours' incubation at 55° C. None of the sera agglutinated in dilutions from 1/2 to 1/64. The control rabbit serum agglutinated at 1/128. It must be remembered that only one strain of *B. pneumosintes* was used. Since we do not know whether all strains of this organism are antigenically homogeneous, it is impossible as the result of these experiments to assert more than that antibodies were absent from the patients' sera to this particular strain.

Summary.

(1) The nasopharyngeal washings of seven patients within the first 24 hours of a typical attack of influenza have been examined by the method of Olitsky and Gates. From not a single patient did we succeed in isolating *B. pneumosintes*.

(2) The serum of 16 persons who had recently suffered from influenza was tested against a *B. pneumosintes* antigen, along with the serum of 19 control persons. No agglutination was observed—even in a dilution of 1/2.

(3) Though we have carefully followed the technique of Olitsky and Gates we have completely failed to confirm their observations on the presence of *B. pneumosintes* in the nasopharynx of patients in the early stages of influenza.

In conclusion we would express our thanks to Drs. G. D. Dawson, F. R. Ferguson, and Dr. H. Harrison for assisting us in the collection of material; to Dr. P. P. Laidlaw for the loan of suitable filter candles; and to Prof. W. W. C. Topley for his help with some of the animal experiments.

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INVESTIGATIONS ON THE ÆTIOLOGY OF INFLUENZA.

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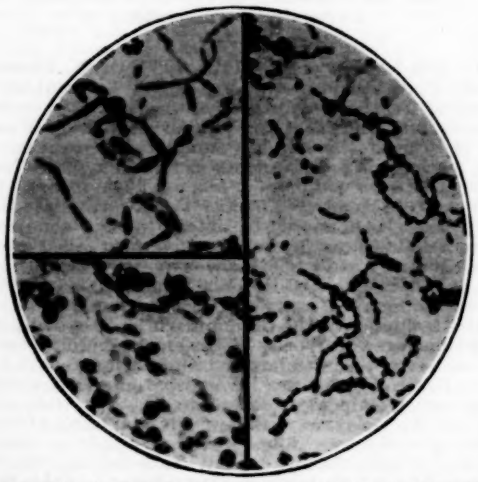
IN a letter to THE LANCET of Jan. 29th, 1927, the authors pointed out that the true cause of influenza was not yet definitely settled. At first it was believed to be due to the so-called influenza bacillus discovered by Pfeiffer (1892). During the great Pan-epidemic of 1918, however, this belief began to be doubted, for although Pfeiffer's bacillus was found in a fairly high percentage of cases of influenza, investigations showed that it was often present also in a high percentage of normal persons, even during periods when the disease was not prevalent. Several observers

FIG. 1.



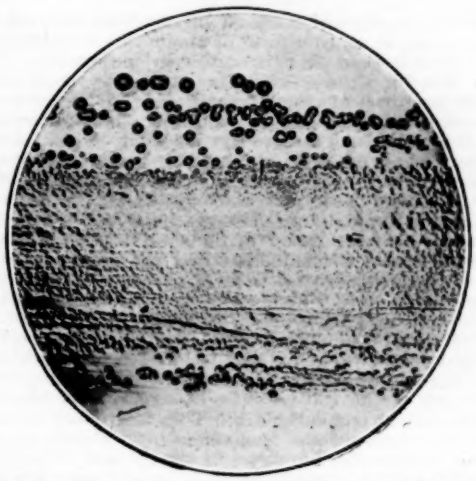
Pleomorphic streptococcus isolated from the blood of one of the authors during an attack of influenza. On left: 24 hours' test, agar, aerobic, × 1700. On right: Broth culture, × 1700.

obtained Pfeiffer's bacillus in from 50 to 85 per cent. of normal individuals. It was also pointed out that in diseases like measles and scarlet fever, the percentage of findings of Pfeiffer's bacillus became greatly increased. The belief therefore began to grow that this organism was more a secondary invader than the true cause of the malady. Failures in attempts to produce influenza in human volunteers by injecting pure recently isolated cultures of Pfeiffer's bacillus into the nose and throat further tended to confirm this belief.

The research worker therefore began to seek for some other cause. It has always been agreed that streptococci play an important part in the disease as secondary invaders, but several workers now began to suspect that a certain streptoccocus might be the primary cause. Others sought for filter-passing organisms, and finally Olitsky and Gates, at the Rockefeller Institute, attempted to prove that *Bacterium pneumosintes* was the true causal organism.

The writers have done a certain amount of work on *B. pneumosintes*, and after finding a satisfactory medium, succeeded in isolating this organism after great difficulty from about three cases of influenza during the year 1925. Somewhat similar bacteria appeared, however, to be present at times in non-influenza cases. In December, 1926, as already mentioned in THE LANCET, Jan. 29th, 1927, one of us contracted suddenly rather a severe attack of influenza, and blood was drawn off from a vein within eight hours of the commencement of the attack and inoculated into culture tubes suitable for the

FIG. 2.

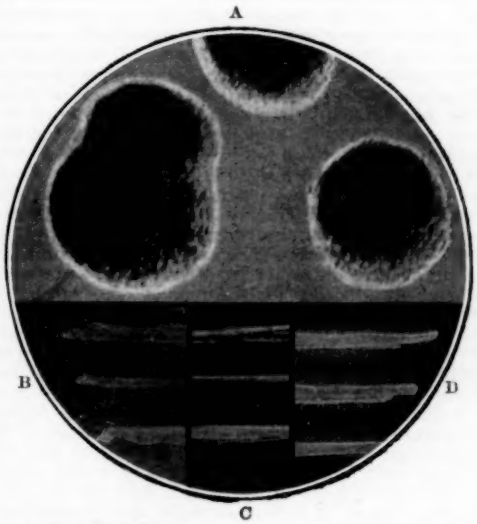


The same streptococcus. Two days' test, agar, acrobic, × 20.

growth of *B. pneumosintes;* a streptococcus, however, appeared instead. This streptococcus was simultaneously isolated from the interior of the nose.

The evidence appeared therefore to point to this streptococcus as the primary cause of this apparently true influenzal attack; and it seemed hardly likely

FIG. 3.



The same streptococcus. A, 2 days' test, agar, aerobic, × 150. B, 2 days' test, agar, aerobic, nat. size. C, 2 days' test, agar, anaerobic, nat. size. D, 2 days' test, B.B. agar, aerobic, nat. size.

that it could already be a secondary invader, as the attack had only commenced eight hours previously.

After the appearance of our letter in THE LANCET we received a letter from Dr. Crookshank, pointing out that a pleomorphic organism had been found in influenza cases by Dr. Donaldson himself and several other workers. Later, two letters appeared in THE LANCET of February, 1927, one by Dr. Donaldson

and the other by Dr. Fearis, both drawing attention to further references on this subject.

During the past two years the authors have been making a special study of the streptococcus group by keeping a careful microphotographic record of all species isolated. During this time about 100 varieties have been carefully studied and recorded photographically.

Seven photographs of each variety have been taken, amounting in all to a total of about 700 photographs. We have worked on this matter in conjunction with Dr. Warren Crowe, who simultaneously studied a large number of the varieties on his specialised chocolate blood medium, recording the appearance of the colonies thereon by reflected light. After many years of research by his special methods, Warren Crowe is also satisfied that there are well over 100 varieties of streptococci existing on the mucous surface of the body, and that as many as ten or more varieties may be found in one individual. Neither Warren Crowe nor ourselves had previously investigated the streptococcal flora of the respiratory tract in influenza, so that none of the 100 varieties recorded by us had come from influenza cases.

Now the interesting fact is, that this pleomorphic streptococcus which we had isolated from the blood and nose of the case of influenza did not coincide with any of the 100 varieties of streptococci already mentioned in our collection. This fact made us still the more suspicious that this new streptococcus might be the possible cause of the disease. We sent a culture of this organism to Warren Crowe for his opinion, and after investigation he gave the following statement: "Your blood streptococcus is undoubtedly different from any in my catalogue." Since his catalogue comprises over 100 varieties which did not come from influenza cases, this is further reason for our suspicion. These indeed were the facts which led us to write our letter to THE LANCET of Jan. 29th. Since that date we have made a thorough photographic record of this pleomorphic streptococcus found simultaneously in the blood and in the nose in the earliest stage of influenza. (See Plate I., Figs. 1–3.) It will be noted that this streptococcus is pleomorphic only when grown aerobically on solid media. In broth culture it is a small streptococcus occurring in moderately long chains and without any suggestion of pleomorphic forms. It grows rather better anaerobically than aerobically. On boiled blood agar, aerobically, it bleaches the medium for some distance around to a definite yellow colour. When first isolated in broth media it grew rather feebly, later it grew profusely, leaving a fairly copious white deposit with a moderately clear supernatant fluid. It shakes up into an emulsion which contains granular flakes. When grown in Hiss's serum water, containing various sugars, it produces after 3 to 11 days acid and clot in glucose, maltose, galactose, saccharose, lactose, dextrin, inulin, salicin, and raffinose. It dose not ferment mannite. It produces slight acidity but no clot in litmus milk. It does not liquefy gelatin. It is insoluble in bile. After it had been subcultured for two months, half a cubic centimetre of a strong emulsion of the live germ injected intravenously into rabbits produced no harm. The pleomorphic streptococccus from the blood and from the nose were found to be identical in every respect. It shows no evidence of being definitely hæmolytic.

Further cases of influenza were now investigated. Boiled blood-agar plates were inoculated from the sputum and from throat swabs. Colonies of streptococci which bleached the blood were picked off and investigated. As many as three varieties of bleaching streptococci were found as a rule in each case. In each of four cases of influenza thus examined a pleomorphic streptococcus corresponding exactly to the above description was found. In addition, some five further varieties of bleaching streptococci were found which were not pleomorphic, and which gave different sugar reactions. We failed to find this pleomorphic streptococcus in two normal individuals who had not had influenza for a year or more. Perhaps the most interesting fact in this investigation is that the patient (one of ourselves), from whose blood and nose the pleomorphic streptococcus had been isolated in December, had another mild attack of influenza two months later, and the same pleomorphic streptococcus was found to be abundantly present in the sputum. It is just possible, therefore, that this organism had been present in the respiratory tract for the two months following the first attack.

Some months hence a further investigation will be made again to ascertain if this organism is still present. We have written this paper, not with any claim that we have discovered the causal organism of influenza, but simply to encourage further researches along these lines.

A NOTE ON THE PREPARATION AND PROPERTIES OF A FEMALE SEXUAL HORMONE

(MENFORMON) IN WATER-SOLUBLE FORM.

BY PROF. ERNST LAQUEUR,
DR. P. C. HART, AND DR. S. E. DE JONGH.

(From the Pharmaco-Therapeutic Laboratory, University of Amsterdam.)

IN THE LANCET of May 14th, 1927, Dr. F. Dickens, Prof. E. C. Dodds, and Mr. D. J. T. Brinkworth describe a process for the manufacture of a water-soluble preparation of the ovarian hormone. It may be of interest therefore to summarise here some of our own recent investigations in this field, which have obviously remained more or less unknown in England.

Messrs. Dickens, Dodds, and Brinkworth state that they have been unable to obtain the hormone in a water-soluble form by means of our so-called water procedure. We do not know why they failed,[1] but we draw attention to the fact that during last year many thousands of units have been prepared by means of this technique at the Organon Works (Oss, Holland) and the Degewop Works (Berlin) among other places. These have been standardised and their strength has been controlled by us. We also sent such watery preparations amongst others to Dr. E. Allen and Dr. E. A. Doisy to compare our standardisations; both investigators found even a slightly higher content of units than we did. We take this opportunity of pointing out that the greatest advance in this field is due to American investigators, first and foremost to Drs. Allen, Doisy, and J. O. Ralls, on whose experiments and methods of standardisation our work has been based.

At first follicular fluid was used in manufacture; for while at that time we succeeded often enough in preparing the hormone from placenta in water-soluble form, this was by no means regularly the case. The explanation lies in the fact that the hormone forms a true, non-colloidal, solution (as we proved by its power to pass a dialyzing membrane), but at the same time is soluble in fats and volatile fat-solvents.[2] The latter when dissolving fats take up the hormone too, and the larger the amount of fatty impurities present, the more difficult it proves to force the hormone to pass into the water. For this reason it is best from the outset to extract the hormone with the least possible amount of accompanying fat. This is the reason why we do not use alcohol for the extraction of the crude material, as the American investigators did; it dissolves too large an amount of impurities, and we discarded it at an early stage.

[1] The authors cite only our German publications, and these incompletely, but our method of preparation was published in English in the Proceedings of the Royal Academy of Sciences, Amsterdam, 1925, xxviii., No. 10.

[2] This probably is not true for the *pure* hormone; its solubility in fat-solvents is not a real one, but is simulated by the fatty impurities that always accompany it. It may be mentioned here that B. Zondek was the first who suggested the possibility of freeing the hormone from lipoids, and made experiments in this direction.

Method of Placental Extraction.

From an experience of hundreds of experiments during the last two years we have found the best procedure to be briefly as follows:—

1. The placenta is used as fresh as possible.
2. It is finely minced.
3. It is boiled with one and a half times its volume of benzene for at most one hour.
4. The benzene is filtered off as quickly as possible and on evaporating the fluid a yellow residue remains, weighing between 200 and 300 mg. per kg. placenta. It contains about 1000 mouse units (M.U.). This is only about one-third of the total amount present in human placenta.[3] On treating it with water, sometimes part of the hormone dissolves to a clear solution, but this is by no means regularly the case and often the fluid is turbid. It is therefore better to proceed as follows:—
5. The residue is repeatedly triturated with small amounts of 80 per cent. alcohol (usually altogether about 50 c.cm.) until the alcoholic layer after centrifugalising is quite colourless. Thus a large part of the impurities are left behind.
6. The alcohol is evaporated; the weight of the remaining residue is about half that of the first crude product.
7. The residue is shaken with 500 c.cm. of water and 1·5 to 2 c.cm. of 25 per cent. HCl for about half an hour.
8. It is then left at a temperature of +2° C. for about 12 hours.
9. Then it is centrifugalised or filtered through glass wool.
10. Finally, if the fluid is not yet quite clear, it is filtered through asbestos (long fibres, treated with decinormal HCl and washed with water). Common filter paper should be avoided because it adsorbs[4] large quantities of active material.

The solution thus prepared contains as a rule about 300–400 M.U. The output may be increased to about 600 M.U. by extracting glass wool and asbestos with benzene, evaporating the solvent and dissolving the residue in water in the manner just described.

Technical Modifications.

This is not the place to discuss in detail all the modifications of technique or to explain why these were chosen. Mention should, however, be made of the fact that it is also possible to dissolve at least part of the residue from the benzene into water by simply conducting a current of gas (nitrogen, hydrogen, carbon dioxide, or steam) into it. Air or oxygen should be avoided as the hormone is spoilt by oxidation. All other additions, except HCl in the amount given, proved unfavourable; organic acids—e.g., acetic—are unsuited, as they often cause formation of emulsions that are very difficult or even impossible to break.

Instead of using 80 per cent. alcohol to reduce the amount of solids of the first residue, in many cases use may be made of acetone. We further tried several saponification methods, following the example of Allen, Doisy, and others. A 2 per cent. solution of Na_2CO_3 in water proved most useful, though we were able to show that the hormone can stand boiling with strong alkalies and acids even under high pressures and temperatures of 170° C., with water at 240°, in oil at 340°.[5] We made use of this property to stand high pressures and temperatures without damage, to mince the placenta in an ideal manner; when heated with water in an autoclave it dissolves completely, after which the fluid may be treated in the usual way.

Another method of reducing the dry residue is by making use of adsorption, which may, as has been said, cause so much trouble. The solution of the hormone in 80 per cent. alcohol is shaken with a special quality of activated charcoal; the hormone, together with a good deal of impurities, attaches itself to the charcoal, and from this adsorption the hormone alone is freed by addition of phenol. On distilling off the phenol with the aid of steam a watery solution of the hormone is obtained.[6]

The crude product prepared from placenta in the manner described weighs 0·1 to 0·2 mg. per M.U. Many thousands of units have already been manufactured in this way in watery solution. Yet we are convinced that the output, which at present only represents a fraction of the total amount present in placenta, may be considerably increased; and this may be accomplished by reduction of the dry residue of the first extract, which contains large amounts of impurities.

In our first communication we showed that the dry residue per M.U. may be less than 0·1 to 0·2 mg., and we proposed the name Menformon for that water-soluble hormone which in at most 0·1 mg. contains one mouse unit. The water solution of hormone from placenta always easily reached this standard and even far surpassed it, so that we could reach a limit of 0·0008 mg. per mouse unit—i.e., about 0·003 mg. per rat unit. This was accomplished, for instance, by again shaking out the watery solutions with benzene; on evaporating the benzene the residue is immediately dissolved in water, or one of the described processes of purification is applied once more. Dialysis may also be made use of if a certain degree of purity has already been reached; then only a small fraction of the hormone is adsorbed by the membrane[7]; with more impure solutions the losses are too big in dialysing.

We found that at last the hormone, purified as far as possible with our present methods, is no more soluble in the common volatile fat-solvents, but only in water (see above), so that its lipoid nature becomes very doubtful.

Properties of the Hormone.

So far we have refrained from saying anything about the physical or chemical properties of Menformon. We must express some doubt about the value of certain statements in the literature—e.g., that the hormone should contain a considerable amount of sulphur (Dickens), or shows a positive histidine test (Dickens, Zondek)—about the accurate chemical analysis by Hartmann[8] from the Ciba Laboratories and even the descriptions of Ralls, Jordan, and Doisy[9]). All these authors worked with materials which consisted only to a very small part of the real hormone. The recent investigations of Dickens, Dodds, and Brinkworth, for instance, were carried out upon a material of which 0·5 mg. represented 1 rat unit; considering the degree of purity reached by us, less than 0·005 of their material must have been the real hormone. Our own preparations, some of them not fully purified, did not show any certain sulphur content and did not give a histidine test.

With regard to the biological properties of Menformon it is possible to say more. Apart from its power of causing typical œstral changes in castrated rodents, and even of keeping the animals for six weeks in this state continually by daily injections, we can mention the following facts. Menformon is able to induce œstral changes in juvenile and in senile animals.[10] It promotes growth of the female genitalia (uterus and vagina). Recent experiments have shown[11] that the lowest limit for obtaining with certainty acceleration of growth of these organs in young rats is 0·00004 mg. of Menformon pro die (injected on five successive days); in rabbits we obtained certain growth with 0·0008 mg. (also on five successive days).

Further, Menformon shows a typical antimasculine effect; it inhibits the growth of testicles, penis, &c., of young males. Moreover, it has a specific action upon the secretory parts of the mamma[12] in female as

[3] Provisional standardisations are carried out with several dilutions of the same batch, each dilution being injected into at least three castrated female mice. For the definitive standardisation we always use 12 mice.
[4] Deutsche med. Wochenschr., 1926, No. 32.
[5] Ibid.
[6] Ned. Tijdschr. v. Geneesk., 1927, No. 17; Klin. Wochenschr., No. 9.
[7] Deutsche Med. Wochenschr., 1926, No. 32; Klin. Wochenschr., 1927, No. 9.
[8] Biochem. Ztschr., 1926.
[9] Jour. of Biolog. Chem., lxix., No. 2.
[10] Proceedings of the Royal Academy, Amsterdam, 1926, xxix., No. 4; Deutsche med. Wochenschr., 1926, No. 30.
[11] To appear in Archiv. für Entwicklungsmechanik.
[12] Communication to the Naturforscher Kongress, 1926, and Deutsche med. Wochenschr., 1927, No. 24 (in the press).

well as in male individuals, but seems to have no influence upon the nipple or mammary fat. Finally it acts specially upon metabolism, but only in castrated females, not in castrated males.[10]

Extracts prepared in quite similar manner from liver and other organs did not show any sign, or at most faint traces, of the various actions of Menformon mentioned above, even if the dose was increased a hundredfold. Thus we think we are justified in regarding these results as typical for this female sexual hormone. Mention may be made of the fact that we have been able to prepare from testes substances, also soluble in water, that are capable of inducing œstral changes. The output was about equal to that from ovaries from which the follicular fluid had been removed.[13]

The practical clinical results are as yet not numerous enough to draw definite conclusions, but several cases are already known in which after amenorrhœa of long duration menstruation was induced by doses of 30 to 80 mouse units.

We thought it justifiable to make such experiments and even to make the preparation available for practical use on a larger scale, as we are convinced, from experiments upon animals and upon ourselves, that it is quite harmless. But this has only been possible on account of the stress laid from the outset upon the highest degree of purity (0·1 mg. pro M.U. as a maximum). For such preparations do not have the least influence upon heart, respiration, or blood pressure, even when injected intravenously, whereas less pure preparations, such as have been described in England by Dickens and Dodds [14] towards the end of 1925, exert an appreciable lowering action upon blood pressure. We think those authors are not quite justified in ascribing this to the hormone itself; it is more probably an effect of the impurities.

EXOGENIC DERMATITIS.*

BY W. J. O'DONOVAN, M.D., M.R.C.P. LOND.,
PHYSICIAN IN CHARGE SKIN DEPARTMENT, LONDON HOSPITAL.

THE term "exogenic dermatitis" may be conveniently used to cover dermatitis due to any sort of external irritant. The result of the application, over a long or short period of time, of external irritants to the skin is the appearance in the sufferer of dermatitis varying in all degrees, from a subjective discomfort without physical signs, through stages of redness that may be discrete and papular, purulent, or scaling, the formation of abnormal pigmentation, warts, up to even the development of ulcers or malignant carcinoma cutis.

The classification of occupational dermatitis, or more widely of dermatitis due to external irritants, is a thankless and unsatisfactory task. It has been attempted by Prosser White,[1] but considering that the factors of cause, of time, of constitutional diathesis, and of chemical irritants all enter into the consideration of any one case, such an attempt, if at all accurate or exhaustive, can only be for the mental satisfaction of the writer; and it would be better for the development of this branch of dermatology that attention be given to elucidating the many factors of skin irritants present in civilised life rather than attempts be made to draw confines about an expanding subject.

Predisposing Skin Types.

There are two common types of abnormal skins, both of which are liable, to a greater extent than is usual, to give way rapidly before external irritants; first, the dry or xerodermatous skin; secondly, the skin that is abnormally moist from sweating. In the ichthyotic skin there is an absence of natural grease which protects it, when exposed continuously to water, against maceration and against the effect of weak acids and alkalies. This dry skin cracks easily in east winds, such cracks become open sores in the presence of irritating chemical dust; but it is among the abnormally moist patients, in the first instance those who work in dusty occupations, particularly cement dust, that the resistance of the skin is lowered by the formation of a poultice of moistened humus retained in the flexures of the hands, the feet, or behind the ears.

There is a constitutional skin affection known as *cheiropompholyx* which brings a great element of difficulty into the diagnosis and proper adjudication of occupational skin affections. This "disease" is characterised by an outcrop, often seasonal, of irritating minute blisters between the digits or on the palms themselves. These blisters rupture leaving raw open sores, which scale and may become septic. A skin that suffers from this condition is very sensitive to many external irritants, whether it be wind, sunlight, soap, water, formalin, or acids. Such cases are readily healed, but may relapse also readily. To what extent a present cutaneous disability may be due to an occupationally started outcrop of cheiropompholyx months or years previously is a problem in every case difficult of solution. A domestic cause acting recently may have been as potent of mischief as a trade irritant of an earlier date. A constitutionally livid condition of the extremities may be responsible for a most engaging problem, as in the case of E. D., aged 15, a van boy, who came to see me in the winter of 1924 with severely ulcerated chilblains of his hands. We could hardly question that were he unemployed, and with his hands continually in his pockets, he would not be suffering from ulcerated chilblains; but, as he worked in winter daily, with uncovered hands that grasped the van rope, we have to concede an ætiological factor in his employment. The lesson to be drawn is that an employer who persists in sending out into the streets a boy with purple hands is inviting a claim for occupational dermatitis that would be very difficult to rebut.

Domestic Irritants.

It is scarcely realised to what extent the modern home is, in fact, a small chemical factory. It would be as well for a practitioner to run through the pages of a catalogue of a stores or of an Italian warehouse to bring to mind how many are the noxious agents that may come in contact with a normal or unduly sensitive skin of a person within the—ordinarily considered sheltered—domestic atmosphere. A housewife has her hands immersed in water for several hours a day, so that the *water maceration dermatitis* which is often seen in barmaids and hospital scrubbers may be seen too in the hands of the housewife herself. Dermatitis due to alkalies is a common occurrence due to the use of soda and soda preparations, to strong soaps, to chloride of lime for bleaching purposes after washing, and, as in the case of one patient, L. H., to the manufacture of her own soap learnt in the back woods of Canada.

Diluted acids are used for the cleansing of lavatory basins and lavatory pans. The composition of furniture polishes, leather preservatives, and metal polishes is unknown to me; nevertheless, these are most certainly deleterious to the skin. Quick drying enamels and paints, special rapid paint cleansers, storage batteries, disinfectants, and insecticides are all in perpetual household use, and any or all may explain an obscure dermatitis occurring in a woman of the lower or middle classes.

Pattern Reaction.

It is important to appreciate that the same cause operating on many skins may produce different results, varying either in kind or in degree. Some bakers in every attack show a follicular purulent dermatitis, others never progress beyond an erythematous and scaling state of the hands and forearms. Some cases

[13] Communication to the Internat. Congr. für Sexualforschung, Berlin, 1926; Klin. Wochenschr., 1927, No. 9.
[14] Biochemical Journal, 1925, xix., No. 5.
* Lecture delivered to the Hull Medical Society, March 4th, 1927.

of lime dermatitis recur rapidly on the arms and neck; in others the dermatitis becomes rapidly distributed to all the flexures; in a rarer group of cases a neglected attack will always be followed by a universal erythema.

If the patient is a psoriatic by nature, then his reaction to an external irritant will be psoriasis in type. A youth, aged 18, was transferred from outdoor labouring to dyeing in an East-end factory, and after a week had to give up his work from an acute but typical confluent psoriasis extending from his wrists to his elbows. It is fair to state that two factors were at work in this case; his forearms were continually immersed in aniline dye, and he cleaned them twice daily with a solution of lime, but neither aniline nor alkali usually have a psoriatic reaction. In this case there was a pattern reaction in the common site of dermatitis due to occupational irritants.

Some skins ulcerate with extreme ease, and in such, where the patient works in cement, in chrome, in arsenic, or in fulminate of mercury, the rapid production of ulcers upon the fingers or eminences of the face is the pattern reaction of this constitutional type or diathesis. In the trade such ulcers may be recognised as "chrome holes," or as "cement burns,"[2] or "powder holes," but these are not the common reactions to any of these irritants. They are specific to the patient so affected. They may be associated with, and surrounded by, a red scaling condition of the skin due to the same cause, or such ordinary dermatitis may not develop at all. H. S. developed these acute ulcers on his fingers ten days after his employment as a painted glass-maker; arsenic and cobalt were the two particular chemicals he handled. A special name, beautifully descriptive of some of these circular ulcers, with acute central sloughs, is "pigeonneau" in use by the French.

Ætiological Difficulties.

That industrial complexity has developed at a greater rate than the educational development of the workers is a factor that has long hindered the development of our appreciation of the full importance of the effect of external irritants on the skin. As a rule our labourers are ignorant of the natural composition or destination of the materials they handle. It may be that active curiosity is discouraged by their employers; it may be that many trade processes are necessarily kept secret from trade competitors; yet it is singular that a worker will handle a substance for 20 years and be satisfied to call it "red acid" and know no more about the stuff he has transported so continuously from barge to wharf.

Another factor of difficulty is that the trade label of the worker may be most misleading as to the hazardous nature of his employment. A boy was admitted under my care in St. James's Hospital for a second attack of acute purulent dermatitis of his hands and feet. He gave his occupation as that of "tea boy," and at first he was considered a case of dermatitis due to want of natural cleanliness, but on his second admission, when pressed, he explained that his work was to carry continuously tins of freshly made tea throughout the day to the hundreds of workers employed in putting up a large new building in the City of London. Cement dust and lime lay thickly about the scaffolds, ground, and stores. He shook this alkali dust out of his shoes every night, and the proper classification of his affection was an alkali dermatitis, an ætiology concealed by the designation of "tea boy."

I have elsewhere published at length my difficulty in unravelling an outbreak of dermatitis among miners, which turned out to be alkali or lime dermatitis among underground compressed air tunnellers who burrowed in the London clay. A baker may show red forearms due to the desiccating action of flour aggravated by the avulsive effect of dough upon the many hair follicles of his forearms. Another baker's "itch" may appear as a follicular purulent dermatitis, while a third baker may show carcinoma cutis of the thumb due to the daily friction of a heated iron pole with which he regulates the oven fires.[3] Under one occupation there may thus be three distinct hazards. The patient may be most disinclined to help in a decision from a desire to carry on at work; particularly is this the case among countrymen. Patients coming at different seasons of the year with a second, third, fourth, or even fifth attack of erythematous or bullous dermatitis of the hands and face due to hops, tomatoes, to chrysanthemums, or to lilies, may offer no explanation because a recognition of what they intuitively know is displeasing to them. The different seasons at which various plants are handled in quantity is part of the everyday knowledge of the dermatologist.

Factors making for Chronicity.

It is reasonable to expect that, with the removal of the patient from the exciting cause, the cure of the skin condition will be rapid and satisfactory. Ordinarily this is so; difficulty arises when there is a constitutional instability of the skin upon which the occupational or external factor has been added. This factor must be worked out with extreme care, as such cases often come before the judiciary under the Workmen's Compensation Act. The underlying factors I would stress at present are chronic urticaria, cheiropompholyx, congenital ichthyosis, and a neuropathic taint.

J. M. suffered, and was treated and apparently cured of an alkali dermatitis due to cement. Later he was brought to see me by the insurance company's doctor now suffering from a widespread urticarial eruption, starting on his back. He had not resumed work after discharge from hospital treatment. The rash became well-scratched into a condition of moist and scaling dermatitis of the extremities, and this was held by a medical referee to be, against my opinion, a case of relapsed occupational dermatitis.

M.B. suffered from an admitted attack of sugar dermatitis. She completely recovered, and while away from work suffered from an acute outbreak of cheiropompholyx on the fingers. This case, fortunately, came before the same referee while the skin was apparently well. Subsequently she was seen with an acute attack of cheiropompholyn, which she afterwards rapidly scratched into a condition of moist erythematous dermatitis of the forearms and hands. From this she recovered, but was later admitted to an infirmary with a carbuncle of the lip; from this she died.

When did the "causa causans" cease to act? Patients with congenital ichthyosis may suffer from intertrigo of the flexures winter after winter,[4] or sometimes only in brilliant summers. Such patients exposed to lime dust or to pitch dust may have these attacks aggravated, but the assessments of responsibility assigned to the different causative factors are always speculative.

The nervous element has to be most carefully considered in a case of any duration, for in the case of the neurotic patient—a type well recognised by the general physician—itching and scratching rapidly become an ingrained mental habit. Dull and unattractive patients suffering from occupational dermatitis find themselves for the first time in their lives free from the toils of daily work, in receipt of money, and the subjects of compassionate interest of doctors, nurses, solicitors, county court judges, relatives, and friends. This limelight and drama are naturally intoxicating and attractive, and unconsciously the patient's attention is focused on their skin in a way we are familiar with in cases of hypochondriacism, of floating kidney, and mucous colitis.

As irritable hearts excused men from the battlefield, so an irritable skin excuses patients from the hazards and unpleasantness of industrial life, and on this account all long-continued cases of dermatitis should have their palatal and tendon reflexes tested, the presence of tremor and anæsthesia to pinprick noted, and the effect of sedative treatment tried. The healing effect of impressive X ray treatment is excellent, but is far out of proportion to the therapy actually applied to the skin, while the effect of a satisfactory financial settlement to these cases is immediate and gratifying.

References.—1. Proc. Cong. Industrial Accidents, Amsterdam, 1925, p. 536. 2. THE LANCET, 1917, ii., 368. 3. O'Donovan, W. J.: Brit. Med. Jour., 1922, ii., 401. 4. Sequeira, J. H.: Diseases of the Skin, 4th ed., p. 113.

Clinical and Laboratory Notes.

A CASE OF ACUTE ANAPHYLAXIS.

BY LEONARD S. DUDGEON, C.M.G., C.B.E., F.R.C.P. LOND.,
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THE details of the case about to be described are of such interest that I have decided to place them on record.

The Case Related.

A lady, a keen horsewoman, had suffered from horse fever and severe horse asthma since childhood. On Dec. 2nd, 1926, I gave her by the intradermal method 0·1 c.cm. of normal horse serum. Within three minutes of the injection a local blister developed followed by redness of the skin over a wide area of the arm in the vicinity of the serum injection, but no further inconvenience occurred. She was not hypersensitive to any foods or pollens. It was considered advisable to attempt desensitisation.

On April 29th, 1927, nearly five months after the dermal injection of 1 drop of horse serum, I gave her at 5 P.M. 0·25 c.cm. of normal horse serum subcutaneously, and as far as I know the inoculation was entirely subcutaneous. Almost immediately after the injection *blood-stained serum* escaped from the wound puncture, and within two minutes she felt faint and the pulse was rapid. Within five minutes of the inoculation of the serum her condition was as follows. There was œdema of the eyelids and very considerable œdema of the lips and face. She was completely comatose with partially contracted pupils. A continuous stream of clear, white frothy exudate was escaping from the mouth. The breathing was rapid and stertorous, and the pulse could not be felt at the wrist, but a fluttering was perceptible over the cardiac area. I gave her artificial respiration for 1 hour and 20 minutes, because if it was stopped for more than a few moments the cyanosis rapidly increased. An injection of 1 in 10,000 adrenalin chloride (1 c.cm.) was given subcutaneously. During the period required for filling the syringe and giving the injection her husband, who was alone with me during the whole of the most critical period of the attack, continued the artificial respiration.

Very gradually the cyanosis lessened, the output of fluid from the lungs diminished, and the pulse became obvious at the wrist. At the end of the time that artificial respiration was employed consciousness had returned and the pulse had considerably improved. She then had a violent attack of vomiting which lasted off and on for about 20 minutes, followed by a feeling of intense cold which was partially relieved by warm applications to the body. Hot drinks could not be taken because of the feeling of intense nausea which followed the violent attack of vomiting. She was then removed to her own house in an ambulance, and cardiac stimulants were administered. Inhalations of oxygen were given at frequent intervals for many hours, as it was found that they considerably relieved the cyanosis and respiratory distress.

Within one hour of the injection of horse serum a diffuse mottled eruption spread all over the body, the colour of the rash fluctuating with the degree of cyanosis. The rash persisted for about 12 hours and then gradually faded. For seven hours after the inoculation her temperature, taken in the mouth and axilla, would not register above 95° F. At 2 A.M. the temperature was 99·6° F., at 6 A.M. 100·4° F., from 10 A.M. to 2 P.M. 100° F., from 6 to 10 P.M. 99·4° F., and then it fell to normal, at which it has remained ever since except on one occasion.

Considerable abdominal distension occurred about midnight (about seven hours from the onset of the attack); it was relieved by means of 1 c.cm. of pituitrin subcutaneously and 2 oz. of glycerine per rectum. The pulse-rate, which had remained during the night about 110 to 120, at 4 A.M. increased to 130 and 140 per minute together with considerable increase in the respiration-rate. She was then given ¼ gr. of morphia and 1 c.cm. of 1 in 10,000 adrenalin chloride. From this point onwards a general improvement in her condition occurred which was maintained, and by 7 A.M., or 14 hours from the time of the serum inoculation, the cyanosis was only just apparent, respirations were 30 to the minute, and the pulse-rate was 100. The rash disappeared very gradually, although it had a tendency to reappear at the site of the injection of the serum in the arm for the next 24 hours. Her general condition rapidly improved, and 48 hours from the onset she was suffering only from mental fatigue and bodily weakness.

Five days after the injection of the serum the patient developed pain and considerable œdema of the arm spreading from the site of the inoculation, and accompanied by a mottled red rash confined to the same area, tenderness of the axillary glands, and a temperature of 99° F. The local reaction was treated with complete rest for the arm and local applications of evaporating lead lotion. In 48 hours the only evidence of this local reaction was slight tenderness at the site of the inoculation. There have been no further local or general reactions, and three weeks from the onset of the attack she is none the worse for her very severe illness.

Commentary.

In my experience of acute anaphylaxis this case presents several features of great interest and importance.

The fulminating onset was produced by the subcutaneous injection of 0·25 c.cm. of normal horse serum into an individual hypersensitive to "horse," who had received one previous injection of 0·1 c.cm. of horse serum directly into the skin five months previously. No subcutaneous, intramuscular, or intravenous injection of horse serum had been given on any previous occasion, and no other foreign protein had been administered. The appearance of definitely blood-stained serum escaping from the needle puncture almost immediately after the injection of four drops of horse serum is a feature I have not heard referred to by any previous worker, and I have not seen it myself. The blood-stained serum actually oozed from the wound puncture.

The almost immediate onset of subcutaneous œdema, severe pulmonary œdema, extreme cyanosis, heart failure, and coma appeared to me to justify the conclusion that the patient's condition was hopeless within five minutes of the injection of 0·25 c.cm. of horse serum. The patient's husband, who served all through the war, told me later that his wife's appearance brought back to his memory the first attack of mustard gas with which he had had a very full acquaintance. I personally believe that artificial respiration saved her life. The sections of lung which I have examined from cases of acute anaphylaxis in the human subject have shown a very diffuse œdema as the characteristic lesion. This patient suffered from a very profuse watery discharge from her mouth for over an hour—in fact, she was being drowned in her own body fluids. If it is ever my misfortune to have to treat a similar case on a future occasion I shall certainly employ artificial respiration, in spite of the fact that it is the most severe exercise with which I am acquainted.

The last point of interest to which I must refer is that the patient has very little knowledge of her illness during the whole of the very acute period which lasted about 14 hours.

In conclusion, my greatest thanks are due to Dr. L. W. Shelley, whose advice and help during the whole night when the patient was so seriously ill were of the utmost value.

A NOTE ON THE SPLEEN AND IMMUNITY.

BY WILLIAM SUSMAN, M.D., C.M. Q.U.ONTARIO.

AN investigation of amyloidosis which I have undertaken has suggested (1) that the spleen plays an essential rôle, and that splenic pulsations are a significant factor in the condition; and (2) that there is a similarity in the distribution of lesions in and about the Malpighian bodies in amyloid disease and in acute infections.

As amyloid disease is usually due to a prolonged bacterial infection accompanied by suppuration, the probable connecting link between amyloidosis and acute infections is immunity. If so, what is the splenic share in immunity, and what changes result from alterations in the rate and intensity of splenic pulsations?

On the one hand, many workers, including L. Aschoff,[1] have shown that the spleen and the reticulo-endothelial system in general participate in the

[1] Ergebn. d. inn. Med. u. Kind., 1924, Bd. xxvi.

production of immunity. Sharpey-Schafer and Moore,[2] however, have demonstrated that atropine will diminish, and aqueous brain extract will augment, the rate and intensity of splenic pulsations. With these observations before us we can investigate the effect of alterations in splenic pulsations on the production of immunity.

Experiment I.

Twelve adult rabbits were immunised against *Bacillus typhosus*. Four of them were used as controls; four others received accompanying injections of atropine, while the remaining four were inoculated at the same time with aqueous brain extract.

The results may be summarised as follows: (1) Serum of an animal injected with brain extract alone gave negative results. (2) Atropine injections lowered the agglutination titre. (3) Brain extract in six days gave 4 times, in 11 days 23·5 times, and in 16 days 32 times the average titre obtained in the controls.

Experiment II.

Adult mice were injected with pneumococcal broth sufficiently diluted to kill the controls in about four to six days. One hundred animals were used as controls; a further 116 were also injected with brain extract. The animals treated with brain extract lived on an average about three times as long as the controls. Approximately 40 per cent. of them outlived all the controls, and 17 per cent. to 25 per cent. lived over four weeks.

A further group of 20 was divided into five sections. All received a pneumococcal injection while sections of the five were also injected with either glucose, peptone, cream, or brain extract. All animals in the four control sections—i.e., those which received pneumococcal broth, broth and glucose, broth and peptone, and broth and cream—gave similar results, whereas all in the pneumococcal broth and brain extract section were alive on the fifty-seventh day.

Conclusions.

1. Brain extract induces an increased immunity reaction, as indicated (*a*) in mice actively infected with virulent pneumococci, (*b*) in the increased agglutination titre in rabbits immunised against *B. typhosus*. 2. It does not act on a protein-shock basis. 3. That the spleen is influenced is at present hypothetical.

This investigation was carried out under a grant from the Government Grant Committee of the Royal Society. I am also indebted to Prof. Shaw Dunn for supplementing the available supply of experimental animals.

[2] Jour. Physiol., 1896, xx.

Medical Societies.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

A MEETING of this Society was held on May 19th in the rooms of the Medical Society of London, Dr. ANDREW BALFOUR, the President, in the chair.

Dr. A. T. STANTON (Chief Medical Adviser to the Colonial Office) opened a discussion on the

Organisation of Medical Research in the Tropics

and laid before the meeting a scheme of representation. One of the general criticisms which had been directed against such a scheme was, he said, that it was bureaucratic. This might be taken to mean that governments should not concern themselves with research, a view with which he had no sympathy; indeed, he considered that the encouragement of research was one of the principal functions of a government, seeing that it was concerned with the maintenance of a high standard of health among the people. He would place the research under a medical department, and that again was a subject of controversy, some contending that it should be conducted outside the medical department, which ought to concern itself only with such subjects as sanitation and the treatment of disease. In the British tropical colonies there were 60 to 70 officers who could be designated medical research workers, chiefly distributed over the East and West African colonies, Ceylon, the West Indies, and the Western Pacific areas. If by research was meant any work intended to add to knowledge of the causation, prevention, and treatment of disease, then all tropical medical workers were research workers. Medical graduates who went to the tropics were of an inquiring mind, and whatever the particular sphere of activity they went to fill, research in the proper sense of the word might be undertaken by them.

An important point which was frequently discussed, said Dr. Stanton, was as to whether medical research of a tropical order ought to be done in the tropics, or whether it could be better carried out in this country. Having spent most of his medical life in the tropics, he had a leaning towards the former view, though he agreed that certain lines of research might be more effectively pursued in this country. One of the disadvantages in the past, as most tropical investigators had found, was their lack of contact with those doing similar work in this country, though no tropical worker had appealed in vain to the British Museum authorities on such subjects as entomology. Latterly the Medical Research Council in England had been anxious to extend its activities to the tropics. This seemed to be a good time, therefore, for establishing a liaison between tropical organisations and research agencies in this country, and the nucleus of the scheme which he submitted was the formation of a joint committee of the Colonial Office and the Medical Research Council, to receive the name the "Colonial Medical Research Committee." The endeavour would be to establish contacts, through this committee, with all the organisations in this country concerning themselves with medical research problems of the tropics, and perhaps with those in other countries, and with international organisations, such as the League of Nations, the International Health Board, and the Rockefeller Foundation. Coöperating in this work there should be such bodies as the Royal Society, the schools and societies of tropical medicine, the research institutes, the Lister Institute, the Committee of Civil Research, the Bureau of Hygiene and Tropical Diseases, and the Imperial Bureau of Entomology.

A very important question, went on Dr. Stanton, was how to disseminate information and reports on research work, and in this connexion there was already in existence a bureau of tropical diseases, which had well carried out its function. His suggested committee would act through a medical secretariat working on a whole-time basis, who would maintain the needed contacts and generally attend to the question of tropical diseases. Dr. Stanton said he fully realised that the mere provision of machinery did not necessarily mean anything, that the personnel was the great requirement; but, given a personnel of the necessary quality and calibre, it was all the better to have an efficient organisation.

Discussion.

Prof. WARRINGTON YORKE (Liverpool School of Tropical Medicine) said that the first question to be asked was whether the present state of affairs was or was not satisfactory. If it was not, what was wrong? To judge by the size and number of papers which were contributed on tropical subjects, the state of affairs might be considered actively favourable, but the opinion he had derived from reading and summarising these papers for publication was that far too much was published. He was inclined to say that more work and less printing would be a good thing. He would not discourage workers, but would ask that their investigation should be more careful, thoughtful, and critical, and that observations committed to paper should be written in full cognisance of what had been done before. Research done without due care and without proper controls not only wasted the time of the reader, but might very well be mis-

leading; it certainly did not advance knowledge. Often when a man had been working at a particular subject and then took a period of leave after sending his contribution, no more was heard of the subject after his return to duty.

There were, said Prof. Yorke, three types of people concerned in the investigation of medical science in the tropics: (1) those sent out from time to time on special commissions; (2) the staffs of the various laboratories scattered through the tropical colonies; and (3) those whose prime duty was the diagnosis and treatment of disease, but who, with commendable enthusiasm, found time and opportunity to do some research. The problem of the isolated worker was one of some difficulty. It was difficult to assist a man who was working by himself; he had little literature, and small opportunity of knowing what others were doing. Such a man, however, should certainly be encouraged, and the committee suggested by Dr. Stanton would be a useful channel for providing help. It was chiefly, however, from the laboratory worker that advance must be looked for, as only he had the special training and equipment needed. Still, the laboratory often lacked the necessary material, and was cut off from intercourse with clinicians. He would not separate the research from the clinical sides, especially as the aggregation of workers together would counteract the danger of stagnation.

The director of such a laboratory was the person who made for the success or otherwise of the establishment, and seniority of service might be of little value as a criterion of fitness for such posts. In order to get the right men for this work it was necessary to make the conditions of service attractive; and certainly they should not labour under any financial disability. Leave should be granted periodically so that men could study and keep themselves abreast of new knowledge, and the staff should be sufficient to ensure continuity in a piece of work while a member of the staff was on leave.

Sir LEONARD ROGERS remarked that it was the function of editors of scientific journals to refuse articles which were below the necessary standard. He went on to speak of the tropical research done under the Government of India. India was fortunate in having what it was desired the tropical colonies should have. Candidates for the Indian Medical Service had first to work for several years as probationers, and were thus required to prove their worth before being granted a position in the laboratory. This created a class of men suitable to fill vacancies in laboratories anywhere. Sir Leonard Rogers described how merchants in India were induced to provide money for research, having seen that this research meant less sickness among their employees. In order that there could be advances, he said, it was of the utmost importance that there should be continuity of effort.

Prof. R. T. LEIPER said that the scheme put forward by Dr. Stanton was based on a colonial unit, and he saw no prospect under such a scheme of attaining the integration of research work throughout the tropics which some had been looking forward to for many years. He favoured an imperial scientific service, with a medical side, especially as laboratories in the colonies were concerned with the routine work as well as research, and research would always be the Cinderella of the laboratory so long as it was under the direction of the medical services. He would prefer to see research attached to the section of medical education, and investigators should have more freedom than was promised in the scheme now outlined. At present there was no responsible body in the tropics to supervise this work. He did not agree with Prof. Yorke's remarks about the literary output of workers in tropical diseases; it was good for a man to commit his ideas and his findings to paper, for only thus would he distil down what he had been doing and become definite with an eye to possible criticism.

Colonel F. HARVEY spoke of the organisation of research in the army. At the War Office there were special directors of hygiene and pathology. Sir William Leishman was the first to hold such office, and it was largely through his efforts that this organisation was instituted. There were also deputy directors in all the army stations abroad. The drawback was that the work concerned only the British soldier; the investigators were not brought into contact with the enormous material presented by the native races. At the War Office there was, too, a pathology advisory committee on which the Medical Research Council and the Royal Society of Tropical Medicine and Hygiene were at present represented. This committee kept in close touch with the medical staff in the tropics. There was also a bureau in connexion with the army, and the men on the medical staffs were kept supplied with technical literature. Where necessary, reports sent home were criticised and returned. He agreed with Prof. Leiper that publication of work should be encouraged as much as possible.

Dr. P. H. MANSON-BAHR did not agree that the results of work should be suppressed; opinions changed with time, and if it had not been for the desire to publish work which seemed to hold out promise, some momentous discoveries would not have been made when they were. Moreover, it was the custom when making a new appointment to have regard to what a candidate had written, and, as an index of his activity and ability, this record could not well be ignored. At present the worker in the laboratory was penalised financially in comparison with the man who was diagnosing and treating disease. The personal factor must always be given a high place; no amount of official organisation could make up for defects in the man who actually did the work. A combination of personal fitness and adequate training with sufficient equipment should be sought for this work. Some official was needed who would travel round and see what everyone was doing. He agreed that the laboratory doing routine work was not the place in which to conduct research.

Dr. DE LANGEN (Holland) deprecated the attempt to keep scientific research within recognised boundaries; it was always liable to take an unexpected turn. He did not think English workers published too much, and they certainly had the faculty of apt and succinct expression. He would like to see an international organisation established in connexion with medical research and a freer international scientific exchange.

The Rev. Mr. CHESTERMAN pleaded that the profession should accept the help of missionary hospitals in the tropics, especially as missionaries could secure labour and inquiries at practically no expense. He felt sure missionaries would do all they could in helping forward the work.

Dr. C. M. WENYON said that much good work had resulted from the central organisation allotting certain work to people specially appointed. Perhaps the scheme set out by Dr. Stanton would eventually become international. An offshoot of the League of Nations organisation was at present conducting a research in Uganda. Of course, the highest ideal was to follow science for its own sake, keeping above all human frailty, but for the advancement of knowledge, as human beings were at present constituted, the element of competition perpetuated keen activity. In research work it sharpened the critical faculty and led to a further development of the laboratory instinct. That spirit was probably answerable for three separate commissions being at present at work on kala-azar.

The PRESIDENT remarked that no one had said what was the best type of local organisation for medical research beyond Prof. Leiper's suggestion to link it with the medical education side. He spoke of the autonomous research work going forward in Trinidad. Incidentally, he said that it had been decided to name the Society's new house "Manson House," in memory of Sir Patrick Manson.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this Section was held on May 20th, Prof. A. DONALD, the President, in the chair. Mr. A. S. PARKES read a paper on the

Internal Secretions of the Ovary.

The active life of the uterus, he said, might be regarded as a series of preparations for the fertilised ovum; the follicular phase, associated with maturation and rupture of the follicles, was followed by the luteal phase, associated with development of the corpus luteum. In the rat the preparation made for the ovum was very slight, but in the dog and rabbit the luteal phase was so marked that it produced a pseudo-pregnancy—involving accessory organs like the breast—when fertilisation was absent. When involution of the corpus luteum ended the pseudo-pregnancy, there might be phenomena characteristic of true parturition—e.g., lactation and nest-making. In woman, probably, the luteal phase dominated the cycle, menstruation being a uterine degeneration after pseudo-pregnancy. Ovulation was supposed to occur 13–15 days after the onset of the previous menstruation. Development of the corpus luteum then induced development of the uterus, and its involution after about ten days caused the retrogressive changes producing the menstrual flow, which might be described as the abortion of unwanted decidua. Experiment proved the ovary to be essential for the early development of the accessory organs, for their cyclic activity in the absence of pregnancy, and for maintaining pregnancy and mammary development. Its control was probably hormonic, as transplantation would prevent the bad results of oöphorectomy.

Œstrus-producing qualities in any substance could now be detected easily by examining vaginal smears. The first definite œstrus-producing extract was obtained by Allen and Doisy (1922) from liquor folliculi, and this gave rise to the theory that maturation of the follicle was the direct cause of œstral changes. But the hormone had been found in ovarian stroma, in fluid from hollow corpora lutea, and in placenta, and the œstral cycle persisted after obliteration of the follicles by X rays. The functions of the corpus luteum hormone were sensitisation of the uterus after ovulation, maintenance of pregnancy, inhibition of the œstrus during pregnancy, and development of the mammary glands; but extracts of corpus luteum had been far less successful than œstrus-producing extracts, and so far had performed only one function of the intact corpus—namely, inhibition of œstrus.

There were thus available an œstrus-inhibiting and—in very impure state—an œstrus-producing hormone (œstrin). Injection of œstrin during the luteal phase of the infertile cycle, or during pregnancy or lactation, might override the domination of the corpus luteum, bringing animals into œstrus and terminating pregnancy. The converse might also work. Œstrin was probably responsible for maturation of the Graafian follicles. It was also highly probable that injection of œstrin might remedy conditions due to low ovarian activity; whilst the hormone of corpus luteum would be useful in those cases of amenorrhœa, premature birth, or mammary deficiency in which the corpus luteum was at fault. More work must be done, however, before this extract could be clinically available. Œstrin had been used for amenorrhœa, sterility, and delayed parturition. Marshall and Dixon's work suggested that parturition was caused by excitation of the pituitary due to the ovarian activity following retrogression of the corpus luteum. It was doubtful if œstrin would be of value for cases of infantile uterus. The sudden hypertrophy it caused in the infantile uterus of the immature rodent was due to an effort to come into œstrus, and seemed to be purely temporary.

The PRESIDENT remarked that in menopausal cases he had never seen any benefit from the use of ovarian extract.

Prof. BLAIR BELL pointed out that the corpus luteum persisted in the psychological pseudo-pregnancy of girls who had "gone wrong" and missed two or three periods from fright. It should be called the "corpus luteum of pseudo-pregnancy." After the trial of a recent case of alleged criminal abortion, he had examined sections of the uterus of the woman who died, and it was obvious that she had never been pregnant at all, and that the corpus luteum found in her ovary was the persistent corpus luteum of pseudo-pregnancy. In experimental animals the follicular elements all lay on the surface and could be removed, leaving only the interstitial cells; left alone, these could keep the uterus active and maintain sexual appetite and œstrus. Observations must not be confined to the pelvis; intense destructive atrophy of the ovary and uterus followed clamping of the pituitary stalk.

Mr. A. W. BOURNE had tried œstrin in three cases for the induction of labour without result. One patient had had a show and some pains after 20 rat-units, but it passed off, and a second injection had no result. The injections were very painful, and in his opinion the dosage was inadequate. He mentioned a case of sterility in which injection had produced all the symptoms of menstruation, together with a very copious clear mucous discharge, but no bleeding.

Mr. PARKES, in reply, pointed out that an active ovarian extract had only been available for three years. Recent work on extraction of œstrin in a water-soluble medium might obviate the pain of injection. In late pregnancy large doses were required to produce abortion, since the active corpus luteum had to be overridden.

Mr. LEONARD PHILLIPS reported a case of

Spontaneous Separation of the Cervix in Labour.

The patient was a primigravida aged 44, in whom a breech presentation had been turned in the antenatal department. Labour was induced by bougies at the thirty-seventh week because the head did not engage readily. After six hours of good pains the cervix had dilated sufficiently to admit two fingers, but was rigid. Twenty-one hours later there had been no further dilatation, although chloral, bromide, morphia, and scopolamine had been freely given. After 36 hours the general condition was good and the head almost on the perineum; an œdematous lip of cervix was palpable behind it. The os still admitted just two fingers. Two hours later forceps were applied on account of fœtal distress, but as soon as the hand entered the vagina—before the forceps blade was passed—a ring of cervix slid out of the vagina. The child was easily extracted and did well. The puerperium began quietly but after four hours abdominal distension developed, the pulse was 140, and the temperature was 100° F. On examination no rupture was found; a raw area on the anterior vaginal wall was cauterised and painted with 1 per cent. violet green, while the vagina was plugged with gauze soaked in 1/500 flavine. A blood culture showed pure growth of *Bacillus coli*. The patient died four days after delivery.

It appeared subsequently, said Mr. Phillips, that the œdematous "posterior lip" was really the anterior lip of a cervix already separated and imprisoned between the fœtal head and the sacrum. In this case patience in the presence of a slowly dilating cervix had had a disastrous result. The limitations of antenatal care were illustrated. The lessons were: the necessity, under scopolamine-morphine narcosis, of frequent vaginal examinations, and the importance of considering Cæsarean section in cases of slow dilatation in elderly primiparæ. A post-mortem was refused, but it was clear that there was no rupture of the uterus and no peritonitis, merely a septicæmia from infection of the laceration.

Dr. J. P. HEDLEY said that so rare a case as this did not justify alteration of the rule that vaginal examinations should be as few as possible.

Mr. EARDLEY HOLLAND mentioned cases of evulsion of the cervix from application of forceps, or pressure in cases of contracted pelvis, and spoke of the utility of rectal examinations for finding the state

of the cervix. There was often too much reluctance to try manual dilatation.

Mr. F. OXLEY referred to a case in which the cervix had come away after a strong dose of pituitrin.

The PRESIDENT said he thought the accident in this case was largely due to the narcosis, which enabled a patient to stand a great deal of pressure without any reflex disturbance.

Mr. PHILLIPS, in reply, said he had often performed manual dilatation of the cervix, but never with the head in the pelvic brim. It was quite difficult enough to diagnose some conditions vaginally, and by rectal examination they were sure to be missed.

A Theory of the Decidual Reaction.

Mr. EVERARD WILLIAMS, in describing a patient in whom pregnancy had twice occurred in the tubes, brought forward the new theory that the formation of decidual cells was the primary event and that it determined where the ovum would be embedded. This theory explained why normally the ovum was embedded in the uterus and how it was that decidual cells were found elsewhere; present theories failed to do this. Ovarian pregnancy was much more common than was at one time believed, and a decidual reaction had been recorded in the peritoneum, the ovary, and the Fallopian tube, in a subperitoneal fibroid, and further afield.

Dr. T. WATTS EDEN said that the so-called decidual cells found outside the uterus were simply enlarged connective tissue cells, and not comparable to the true decidual reaction, which included enormous hypertrophy of the whole membrane and glandular and vascular changes.

SECTION OF DERMATOLOGY.

A MEETING of this Section was held on May 19th, Dr. J. H. SEQUEIRA, the President, in the chair.

Dr. LOUIS SAVATARD (Manchester) read a paper on

Ichthyosis and Cancer of the Skin,

with special reference to mule-spinner's cancer. He said that xeroderma pigmentosum could be regarded as a precancerous dermatosis, as in this rare disease the supervention of cancer was the rule, but the fact that xeroderma simplex, or ichthyosis simplex, was also a fertile soil for malignant growths was insufficiently recognised. Ichthyosis he regarded as an important factor predisposing to cancer of the skin. In some cases of cutaneous cancer, by adopting a routine examination of the whole skin, he had found lesions unsuspected by the patient, and in a number there was associated ichthyosis, especially where a carcinoma had arisen on a keratotic condition. The keratosis was probably secondary to the ichthyosis. All types of carcinoma might develop on keratosis; indeed keratosis was the first clinical sign of a squamous carcinoma. Dr. Prosser White, of Wigan, had described in mule-spinners a condition of the skin which he had named "shagreen skin," but Dr. Savatard had not noticed this peculiarity among the mule-spinners of Manchester whom he had seen, and submitted that this type of skin was merely an ichthyosis. Ichthyosis seemed to be fairly common in Lancashire; in an examination of 400 operatives he had found an incidence of 5 per cent. Among 400 mule-spinners of very variable ages whom he had inspected at their work he had found 20 with ichthyosis, in 10 of whom the condition was well marked. Two had suffered from cancer of the scrotum. His investigation had convinced him that ichthyosis was an important ætiological factor in mule-spinner's cancer, and he regretted that the Departmental Committee had stated, after its 1925 inquiry, that without exposure to mineral oils there would be no mule-spinner's cancer. Dr. J. Robertson, of Darwen, had arrived at a very different conclusion after independent inquiry.

Dr. A. WHITFIELD thought that Dr. Savatard ascribed an undue importance to ichthyosis, though admittedly the ichthyotic skin was a badly nourished skin, especially in the absence of true maturity of the horny cell and formation of grease. The ichthyotic patient started life with that aspect of senility. He had not seen malignant keratosis in the keratotic subject.

Dr. GRAHAM LITTLE said he would have thought it rare for carcinomatous changes to occur in senile keratosis.

Dr. H. MACCORMAC said it had always seemed to him that there was a tendency for the prickle-celled type of cancer to originate in some definitely pre-carcinomatous condition. In some cases he saw during the war, particularly in Australians, cancer had developed on exposed sites following long periods in tropical sunshine. Senile keratosis was a term which was applied by different dermatologists in different ways.

Dr. A. M. H. GRAY said it should be an easy matter to determine how many cases of scrotal carcinoma occurred in men who did not work with oils, tar, pitch, or soot. He believed it was rare to find scrotal carcinoma unassociated with those occupations.

Dr. SYDNEY THOMSON said that among many ichthyotic patients he had not seen a warty growth of any sort. Ichthyosis had a well-marked topographical distribution, but senile skin had not.

Dr. H. W. BARBER said that a point worthy of consideration was the association of multiple superficial basal-celled carcinoma with psoriasis, as pointed out by Dr. Gray and Dr. Little. He asked whether psoriasis were more likely to occur in dry-skinned people than in those whose skin was normal.

Dr. SAVATARD, in reply, said he recognised that oil, tar, and soot produced cancer, but if careful examination of the whole skin were carried out as a routine he thought cancer would be found more frequently in persons having an ichthyotic skin.

Dr. J. M. H. MACLEOD showed a patient who had

Dermatomycosis due to Monilia.

He had brought the case, he said, because it was important to report such a condition when its true nature had become certain; there was much confusion about the dermal states produced by yeast-like organisms.

This woman had, between two or three of her fingers, white patches a quarter of an inch across, which were sodden, as in trichophytic infections. At first Dr. MacLeod attributed the condition to epidermal trichophyton. The scrapings from it showed mycelial shreds; they were coarse and did not branch, and hence he became suspicious as to the correctness of his diagnosis. The organism turned out to be monilia. At a temperature of 25° C. it formed within 18 hours a whitish or creamy glistening culture, later becoming almost granular. In the early cultures no mycelia were seen, but there were oval bodies, some of them inclined to bud. Later there were small mycelial shreds and small round bodies. The culture did not ferment lactose, but in glucose fermentation occurred after a week with production of gas.

Dr. MacLeod had satisfied himself, he said, that the organism was not *Oidium albicans*. The monilias were able to produce cutaneous lesions which were indistinguishable from those of true ringworm, but the organisms were very different. It was likely that many conditions attributed to yeasts were due to monilia.

Dr. S. E. DORE demonstrated a case of what he regarded as

Pemphigus Vegetans.

A woman, aged 59, had condylomatous growths on both lips, beginning five months before. There was no history of any previous formation of vesicles or blebs. The lesions developed before any drugs had been taken, but the patient afterwards took potassium iodide and arsenic. The Wassermann reaction was negative, and constitutional symptoms were absent. As the patient came from a distance he had not had a biopsy done nor scrapings examined.

Dr. A. D. HEATH (Birmingham) spoke of a case of his own, looking very similar, which proved to be one of Hallopeau's disease (possibly dermatitis vegetans). There were also lesions of the nails.

Diphtheroid bacilli were present in large numbers in the mouth. The condition had cleared up, though very bad when he saw it first.

Dr. GRAY considered the case was more like dermatitis vegetans than true pemphigus vegetans. Some of the conditions to which the former name was given were simply fungating granulomatous lesions, without bullous or pustular formation.

Dr. H. G. ADAMSON said that one point against the diagnosis of pemphigus vegetans was that the patient had had iodide of potassium. If this drug was given to a patient who had pemphigus it always made the bullæ worse; it even brought bullæ out where they were not evident before. In one or two cases he believed pemphigus had been started by the local application of tincture of iodine.

Dr. LITTLE showed a case of

Dermatitis Herpetiformis.

The patient had an acute eruption of vesicles on the chest, back, and buttocks. In South Africa he had had three injections of his own blood, and temporary improvement followed them. Relapse, however, occurred, and the patient was advised to come to this country. He now had large bullæ and very characteristic lesions in the mouth, with some old scarring, the result of former lesions. He could produce vesicles in a short time merely by exerting pressure on the skin. Five minims of liquor arsenicalis thrice daily had brought about a great improvement in the eruption.

Dr. GRAY was inclined to think that the condition was pemphigus foliaceus; the question could be put to the test by trying to elicit Nikolsky's sign.

Dr. HEATH spoke of a similar case under his care which was kept under control by means of arsenic.

New Inventions.

ELECTRIC-HEATED RADIUM WAX-KNIFE.

RADIUM when applied at a distance from the skin in inoperable and post-operative cancer work, according to the principles of Regaud, of Paris, and other continental workers, is supported by means of wax moulds fitting over the part. The construction of these involves considerable manipulation, and to facilitate this the electric wax-knife has been designed. Repeated heating of an ordinary wax-knife is both tedious and unsatisfactory. The wax-knife shown is

kept constantly hot by means of an electrical resistance surrounding the upper part of the blade. The current (240 volts) is obtained from the ordinary room supply through an insulated wire with socket. The illustration shows the instrument in use. It can be obtained from the Medical Supply Association, 167, Gray's Inn-road, London, W.C.

ARTHUR B. SMITH, M.B., F.R.C.S.E.
London, W. SYDNEY M. SMITH, M.B., Ch.B. Edin.

Reviews and Notices of Books.

VENEREAL DISEASES.

Treatment of Venereal Diseases in General Practice. By E. T. BURKE, D.S.O., M.B., Ch.B. Glasg., V.D. Officer to the County Borough of Warrington; Member of Council, Medical Society for the Study of Venereal Disease. London: Faber and Gwyer, Ltd. 1927. Pp. 162. 5*s*.

THIS work sums up for the general practitioner the minimum treatment required and the standard and tests of cure for both syphilis and gonorrhœa. Dr. Burke deprecates half-measures in the treatment of either disease, holding that the practitioner who is not prepared to deal thoroughly and intensively with the case from start to a satisfactory finish had better send his patient to an expert for treatment, either privately or to the special clinic. He gives accordingly seven useful and detailed "schemes of treatment for syphilis," one for each stage or type of the disease. Any practitioner who aspires to treat syphilis well cannot do better than follow these schemes. While giving a good chapter on the preparations and modes of administering mercury, the author in his introduction says that he has discarded the use of this drug for over two years, regarding it as "obsolete as is sarsaparilla." The chapter on the treatment of congenital syphilis is excellent; emphasis is laid on the necessity of continued treatment and observation of these cases. The section of the book on gonorrhœa is modern and sound; the danger of making gonorrhœal neurasthenics is mentioned, but at the same time the need is insisted on for careful treatment. When the patient appears to be cured observation over a period of time is highly desirable. Dr. Burke is a believer in the value of vaccines and of electrargol in the treatment of gonorrhœa and its complications.

The *obiter dicta* on syphilis and gonorrhœa at the end of each section are usually sound and often amusing; some, however, are a little cheaply clever and scarcely worthy of the book. Seven appendices give in detail the manner of collection of the various materials for pathological tests required in V.D. work, and there is a final chapter upon urethral dilators. It is well worth while for every practitioner to buy this book—for guidance if he is in the habit of treating V.D., but in any case to be able to explain to his patients the length and adequacy of modern treatment of these diseases, and to assure them of the excellent prognosis where treatment is thorough and even enthusiastic.

Les Syphilis Viscérales Tardives. Par H. GRENET, R. LEVENT, and L. PELLISSIER. Paris: Masson et Cie. 1927. Pp. 378. Fr.32.

THE authors believe that many cases of late syphilis occur owing to insufficient treatment of early syphilis by those doctors who rely on a negative W.R. as proof that infection is non-existent. They quote Scholz-Sadebeck, of Breslau, who finds that all cases of syphilis that have been adequately treated with mercury from 1900 to 1921 show a much smaller proportion of tertiary syphilis than was formerly seen; they believe that with the now general administration of salvarsan there should be an even smaller number of tertiaries in future. The authors find that in visceral scleroses syphilis plays an essential but not an exclusive part, and that among other associated factors alcoholism is particularly active. The third chapter contains an admirable description of the macroscopic and microscopic findings in tertiary syphilis. Long and detailed accounts are given of the various heart lesions of late secondary or tertiary syphilis, stressing the variety of the effects of the spirochæte on the heart muscle, valves, and blood-vessels. A separate chapter is given to aortitis. We are also reminded that though aortitis is found frequently from 12 to 20 years after the date of infection, yet it is probable that the lesion is often present but causing no gross symptoms at a much

earlier date. Cases are quoted of undoubted aortitis in syphilis which has been under observation from the start, where this lesion is found at the end of the first year of infection or second years. The authors urge that in old-standing cases of syphilis percussion of tendon-reflexes, examination of the pupils, a Bordet-Wassermann test, auscultation of the heart, and a skiagram of the aorta are all equally important. They emphasise the fact that aortitis is found above all in untreated or badly treated cases of syphilis.

There are chapters on blood alterations in late syphilis, or infection by syphilis of the lung, intestine, kidney, peritoneum, pancreas; there is also a chapter on the relation of syphilis to diabetes, and another on syphilis of the endocrine glands. Modest in appearance and price, this book will be of value, not only to the worker in syphilis, but to the general physician. It is a patient and exact piece of medical literature.

DISEASES OF THE SKIN.

Third edition. By OLIVER S. ORMSBY, M.D., Professor of Dermatology, Rush Medical College, University of Chicago. Philadelphia: Lea and Febiger. 1927. With 521 figures in text and three coloured plates. Pp. 1262. $11.

THE third edition of this important text-book will be especially welcomed by the English-speaking dermatologist, for it contains an up-to-date bibliography most fairly selected from the best literature of all countries. It is difficult to find any weak spot. The size is handy, the paper and printing of good quality, the text concise yet eminently digestible, and the photographic illustrations of typical cases are of unusual merit. The symptomatology of the various diseases occupies by far the largest share of the available space, but this is not to say that differential diagnosis and pathology are neglected. The author has been wise in referring the reader to original sources for information and detail in the matter of treatment in every case where this is not yet standardised, for much space is thereby saved, and the risk of confusion from too generous a choice minimised. The method of classification is that first introduced by Hebra and since adopted by the majority of the writers of text-books. It is based on pathological effects (visible or microscopic)—e.g., hyperæmias, hæmorrhages, hypertrophies, &c.—and is probably the best until all or most of the ætiological demands can be satisfied. There are three coloured plates, but these might as well have been omitted, for they are not true colour reproductions and do not compare favourably with some of the best modern efforts in this direction.

There is an excellent index of over 30 pages, and no serious student of dermatology need hesitate to purchase the book, but it is to the experienced practitioner that it will make most appeal.

Outlines of Common Skin Ailments. By T. CASPAR GILCHRIST, M.D., Professor of Dermatology, Johns Hopkins University, U.S.A. London: Baillière, Tindall and Cox. 1927. Pp. 54. 7*s*.

THE central purpose of this short publication is to assist the student or the practitioner in consulting larger text-books. The method suggested includes a routine of making three cross-references for any particular case, in the following manner: (1) refer to the scheme for making a complete clinical examination given on p. 6; (2) then turn to pp. 9–11, on the regional distribution of common skin diseases; and finally (3) consult pp. 15–35 for "short diagnostic descriptions arranged according to their primary lesions." A system based on the principle of cross-references is seldom a time-saver, while the information contained in the text is too abbreviated and compressed to be of use to any but lecturers or students preparing for their ordeals. There are some 60 photographs illustrating the commoner diseases of the skin; these are much too small to be of any real value as diagnostic aids.

The idea of the book is praiseworthy and well elaborated, but its employment must not be pressed too far, especially by readers with only an elementary knowledge, for whom presumably the book is designed.

NEW STUDIES OF TUBERCULOSIS AND RESPIRATORY DISEASE.

Nouvelles Études Cliniques et Radiologiques sur la Tuberculose et les Maladies de l'Appareil Respiratoire. By ÉMILE SERGENT. Paris: Maloine. 1926. Pp. 537. Fr.65.

THIS book is a suitable companion volume to the collections of essays published by Prof. Émile Sergent some few years ago, entitled respectively Études Cliniques et Radiologiques sur les Maladies de l'Appareil Respiratoire and Études Cliniques sur la Tuberculose. More than three-fourths of the present volume deals with various aspects of tuberculosis, the remainder being devoted to other respiratory diseases. The former comprises pathological anatomy, the rôle of the soil, adolescence, and syphilis in relation to tuberculosis, with chapters on physical signs and diagnosis, tuberculosis of certain special types such as hilum disease and pleurisy and treatment and prophylaxis. The latter covers rather sketchily abscess of lung, intrathoracic tumours, asthma, non-tuberculous pleurisies, and the condition of which the author has for many years made a special study, syphilis of the lung.

Like the previous volumes, the book is a collection of essays and is in no sense a systematic text-book. The chapters are made up of collections of papers written by Prof. Sergent to French scientific journals, communications to the Académie de Médicine, and discussions at tuberculosis conferences. For this reason, perhaps, they lack the continuity of an ordinary text-book and are valuable, rather, as the personal views of an indefatigable worker in the domain of tuberculosis and respiratory disease. The views of the author on the frequent and intimate relationship between syphilis and pulmonary fibrosis are well known. The chapter on the use of lipiodol in the radiological diagnosis of respiratory disease is valuable and will be found so to those who wish for a detailed description of the technique and results. The illustrations throughout are beautifully done, as are the coloured plates. It is a pity that the book contains no subject index and that the bibliography is so inadequate.

NOTABLE BRITISH TRIALS.

Herbert Rowse Armstrong. Edited by FILSON YOUNG. Edinburgh: Wm. Hodge and Co. 1927. Pp. xi. + 396. 10*s*. 6*d*.

IN August, 1920, the wife of Herbert Rowse Armstrong was certified insane and placed in Barnwood Private Asylum, near Gloucester. In the following January she was brought home again, but soon fell ill. In February she suffered from acute and constant nausea; on the 18th she lost the use of her limbs and was unable to get out of bed; on the 22nd she died. In the following October Armstrong, who was a solicitor at Hay in Brecon, where he held the post of clerk to the justices, was engaged in a small controversy with another local solicitor, Mr. Martin, over the completion of a sale. Armstrong frequently pressed Mr. Martin to come to his house for tea. On Oct. 26th Mr. Martin did so and was violently ill that night. A sample of his urine was found to contain arsenic. It subsequently occurred to the doctor, who had also attended the Armstrong household, that Mrs. Armstrong's symptoms—vomiting, the "high steppage" gait, and discoloration of the skin were all characteristic of arsenical poisoning. The Home Office was addressed; Mrs. Armstrong's body was exhumed and was found to contain 3½ gr. of arsenic, the largest amount which the late Mr. J. Webster, F.I.C., had ever discovered upon a

post-mortem examination. Armstrong was arrested, convicted of murder,[1] and hanged. He had been an extensive purchaser of arsenic, ostensibly for weed-killing. A packet containing 2 ounces of arsenic was found in a bureau drawer at his house; a fatal dose, wrapped in paper, was found in his pocket on his arrest, and his explanation—that he had made up an ounce of white arsenic into 20 small packets for the purpose of killing dandelions—went far to damage his defence, elicited as it was in reply to a few final questions by Mr. Justice Darling just before the accused man left the witness-box. The defence was unable to controvert the evidence of arsenical poisoning, but suggested that Mrs. Armstrong had deliberately poisoned herself, though the proof of her physical incapacity during the last few days of her life was incompatible with the suggestion. A witness for the defence, Dr. F. S. Toogood, presented the theory that Mrs. Armstrong had suffered from auto-intoxication when she went into the asylum, that arsenic had nothing to do with her then condition, that she took one poisonous dose on Feb. 16th, and that part of it became encysted—this being the explanation of the delay in the arsenical action upon the parts of the body where it was found at the post-mortem examination. The main legal difficulty in the case was the question whether evidence of the attempt to poison Mr. Martin could be given on the charge of poisoning Mrs. Armstrong. Mr. Justice Darling admitted it and the Court of Criminal Appeal upheld his action. The evidence of the attempted poisoning of Mr. Martin was not admissible to show that Armstrong was in the habit of poisoning people and might therefore be expected to have poisoned his wife; but it was admissible in order to show that his purchase and possession of arsenic was not for the innocent purpose of destroying weeds (as he had alleged) but for felonious use upon human beings.

Mr. Filson Young writes a bright introduction to this trial which is in some respects not of the most notable. He gives hints that other illnesses and sudden deaths in the neighbourhood might have been ascribed to Armstrong's hospitality. The story has not a little medico-legal interest, though in places it is told with a rather exuberant journalism; the inclusion of Appendix B, for example, is hardly justified.

CLAIRVOYANCE AND MATERIALISATION.

A Record of Experiments by Dr. GUSTAVE GELEY. Translated by STANLEY DE BRATH, M.Inst.C.E. London: T. Fisher Unwin, Ltd. (Ernest Benn, Ltd.). 1927. With 51 illustrations and 105 diagrams. Pp. 401. 30*s*.

IN an address before the International Congress of Physiologists at Edinburgh in 1923 Prof. Charles Richet entered a plea for the enlargement of the study of physiology by other means than the ordinary channels of the senses, and this work might form a text-book or guide to experimentation in accordance with the lecturer's thesis. Anyhow, Dr. Geley's translator describes him as "Sceptical in analysis, tireless in research, scrupulous in statement, fearless in pursuit of truth . . ."—qualities which should fit him to scrutinise the experimental research on the supernormal recently undertaken at the International Metaphysical Institute in Paris. In an introduction discussing the practical side of mediumship, Dr. Geley deals with the conditions necessary to the production of phenomena, admitting the failure of attempts to solve the difficulty of using the senses of touch and sight, in the absence of light, and light is said to have an inhibiting effect on the production of "spirit forms." He believes that this difficulty may be overcome, but until it is, the sceptic must not be blamed if he refuses to accept the happenings in the séance room as scientific phenomena.

The book is divided into two parts, one dealing with clairvoyance and the other with materialisation—the so-called ectoplasmic appearances—and in both sections the author describes the procedure at séances and the care taken to avoid fraud; he eschews theorising, save where he gives what he holds to be analogous facts in biology as furnishing possible explanations. To describe the experiments is the main task which he sets himself, holding that "experimental details do, in fact, constitute scientific material which must, willingly or unwillingly, engage the attention even of those most prejudiced against metaphysic studies." He admits that he has not been personally fortunate in seeing complete materialisation of actual beings having for the moment all the characters of life, but claims to have seen fingers with nails, hands with bones and joints, and a living head, to have felt a skull under thick hair, and to have detected living human faces. The writing suggests that he believes that he has had these experiences. It is suggested in the book that ectoplasmic forms are a physical duplication of the medium materialised during trance, in which case one would expect to find that wax moulds of ectoplasmic hands and feet, which are discussed, would be duplicates of the moulds of the hands and feet of the medium, a clear opportunity for trickery thus being provided in the teeth of much protest as to the impossibility of faking. A sequel to the work, in which an explanation of psychic phenomena on philosophic lines was promised, is lost to the world, for Dr. Geley was killed in an aeroplane accident in 1924. He was a serious worker along the lines which he chose, and real knowledge is, perhaps, not served by refusing to recognise the energy that is being devoted to various forms of psychical research. Yet the sterility that attends the work of the "spiritualists," even more than their romantic conceptions of "science," makes the reading of the procedures at séances unprofitable.

NEUROLOGICAL DIAGNOSIS.

Leitfaden der Neurologischen Diagnostik. Second revised and enlarged edition. By Dr. KURT SINGER, Nervenarzt, Berlin. Berlin and Vienna: Urban and Schwarzenberg. 1926. With 34 illustrations. Pp. 246. M.9.

Dr. Kurt Singer's handbook of neurological diagnosis was reviewed by us at the time of its original appearance, and its practical merits emphasised. With commendable brevity the author manages to provide a conspectus of the whole clinical field of neurology without sacrificing essentials. His method consists in the selection of outstanding clinical symptoms (muscular atrophy, paralysis, disorders of gait, involuntary movements, neuralgia, headache, vertigo, unconsciousness, and so on) just as they are prone to be encountered in practice, and in analysing the significance of their diversified appearances. In addition to symptom examination he takes the student through sign examination—e.g., those furnished by the reflexes and by reflex reactions. On every page there is evidence of careful clinical observation and of sound knowledge of diagnostic principles, and in its enlarged edition the book is sure of increasing appreciation.

TRAVAUX ET MÉMOIRES.

By Prof. PIERRE MARIE. Vol. I. Paris: Masson et Cie. 1926. Pp. 358. Fr.30.

THE veteran Prof. Pierre Marie has been persuaded to reissue in volume form those now somewhat old, and for that reason (among others) classical, contributions of his which in their time either formed entirely new additions to neurological doctrine or served to orient neurological thought into channels subsequently proved to have led to fresh accretions to its sum-total. They are thus of historical interest and value, and they can be re-read to-day with profit if no longer with the fascination inseparable from their first appearance.

Here is the list: aphasia, acromegaly, spondylose rhizomélique, chronic hypertrophic pulmonary osteo-arthropathy, hereditary cleidocranial dysostosis, achondroplasia in the adult. Time has confirmed the

[1] THE LANCET, 1922, i., 812.

views expressed many years ago in most instances, if not in all; yet confirmation or modification counts relatively little in comparison with the evidence these pages furnish of the clinical method carried to perfection, of clinical insight tinged with genius, of clinical observation proceeding to its conclusions without waiting on the laboratory or the post-mortem room. Not that either of the latter is ignored or belittled—the exact contrary is the case; but the first step in advancing knowledge must ever be taken by the study of living material and by the correlation of clinical instances. Of this method Prof. Pierre Marie has been the master, as, in another sense, he has been and is still the "Maitre" of a whole generation of neurologists scattered the world over.

WHEELER'S HANDBOOK OF MEDICINE.

Eighth edition. By WILLIAM R. JACK, B.Sc., M.D., F.R.F.P.S.G., Honorary Consulting Physician to the Glasgow Royal Infirmary. Edinburgh: E. and S. Livingstone. 1927. Pp. 630. 12*s.* 6*d.*

"Wheeler and Jack" is now well known as one of the best synopses of medicine available as a handbook. It is a stand-by alike to the student and practitioner. The eighth edition has been rendered necessary by the exhaustion of the seventh since we reviewed it in 1924. There have been few changes in medical practice and theory during this interval requiring new articles, but the whole book has been revised to include the most recent work in pathology and treatment. It is the care taken to keep this work up to date that makes it a valuable possession.

NOTES ON MALAYAN CULICIDÆ.

By A. T. STANTON, M.D., F.R.C.P., D.P.H. London: John Bale, Sons and Danielsson, Ltd. 1926. Pp. 94.

THIS volume of collected papers by Dr. Stanton, who is a well-recognised authority on the entomology of Malaya, forms one of the series of studies which have recently emanated from the Institute for Medical Research, Kuala Lumpur. Amongst the papers included are several concerning the larval characteristics of Malayan anophelines, notes on the anopheles of Malaya and Sumatra, and records of malaria infections amongst them. The text is embellished, and the descriptions rendered clearer, by the very effective black-and-white drawings of Mr. Engel Terzi and Miss Ruth Ford. The gradual collection of data of the various forms of mosquito that carry parasites in different parts of the tropics is an important part of the world campaign against malaria, and we welcome the efforts being made in Malaya to investigate and differentiate species and their habits.

MEDICAL NOTES.

By W. J. TYSON, M.D. Durh., F.R.C.P. Lond., F.R.C.S. Eng. London: H. K. Lewis and Co. 1926. Pp. 64.

THE busy consultant rarely has time to analyse and correlate observations made here and there on all sorts of conditions, and he often hesitates to make public the contents of a scrappy note-book, even if he has been wise enough to keep one. Dr. Tyson, however, has bravely issued a small book containing 50 short notes jotted down at various times. The value of these "stray thoughts, gathered from long hospital and private experiences," is great, for they form records of experience but little influenced by text-books or fashionable views. Notes on such subjects as "syncope from biliousness," "the soporific action of mercury," and "the danger of putting old people to bed" are hardly to be found except in collections such as this. Dr. Tyson makes some useful suggestions on the treatment of the relations and friends of patients; he adds: "I have often thought that the public do not always realise or understand what a professional fee includes. It means not only the direct treatment of the patient, but also the thought for the future welfare of the patient at times when the doctor is at home, and also the interviews, letter-writing, and telephone messages by the relations. It is well sometimes that the public should be informed of these matters." He concludes with an apt note on "when should we as doctors—or our patients—give up work?" Dr. Tyson's book gives one the pleasant impression of having had a chat with him on "shop" by the fireside.

THE STRUCTURE OF THE ATOM.

Third edition, revised and enlarged. By E. N. DA C. ANDRADE, D.Sc. Lond., Ph.D. Heidelberg, Fellow of University College, London, and Professor of Physics in the Artillery College, Woolwich. London: G. Bell and Sons, Ltd. 1927. Pp. 750. 30*s.*

THE third edition of Prof. Andrade's book is a very much bigger volume than the first, and is probably the most complete exposition of the subject at the present time. The book is written for those who want to get definite information on the subject of atomic structure; this information reveals the atom to be of great simplicity in some respects and in others of great complexity. The simplicity of structure whereby practically all the mass of an atom is concentrated into its nucleus appeals to anyone who is looking for an explanation of how it is that alpha particles on impact with such atoms are sometimes swung back upon their paths, but this simplicity has to be disregarded directly the spectral characteristics of the atoms are discussed; the structure which spectroscopists require in order to give a rational idea of line and band spectra appears to become more and more complex. Experimental and theoretical treatment run side by side in this book, and physicists are under a deep obligation to Prof. Andrade for the masterly way he has tackled both aspects of the subject.

HOMINICULTURE.

Organisation et Hygiène Sociales. By Dr. JULES AMAR. Paris: Dunod. 1927. With 110 text figures. Pp. 692.

IT is generally supposed that the time has long gone by when a man could take all human knowledge for his province and write books about it. If it has, Dr. Amar makes a good attempt to revive it. His book is described as a treatise on eugenics or, as he prefers to call it, hominiculture; it might well have been titled *De omnibus rebus et quibusdam aliis* which is perhaps not an unreasonable synonym for any comprehensive discussion of all that makes for the betterment of the human race. He treats successively of the history of social hygiene, the immense importance of the discoveries of science, the colloidal nature of living matter, immunity, probability and statistics, reproduction and generation, heredity, growth, adolescence and celibacy, education, alcoholism, syphilis, cancer, tuberculosis, old age, death and nationality, with odd notes on everything from Jenner's treatment of his domestic servants to the size of the spleen in sticklebacks. He quotes his authorities profusely and they range from Genesis to Loeb, and from Willard Gibbs to what Lady Astor is reported by the daily press to have said. The whole is written with a captivating vivacity and certainty; the author has clear views on all subjects, and he expresses them plainly. It is impossible to review such a book. It may be felt that no man could cover such a field with anything like tolerable accuracy; as a matter of fact, testing those parts of the book which are within our knowledge, we find that the author does not stray far from what we believe to be the truth. Previous works by Dr. Amar on scientific management, industrial efficiency, and the employment of disabled men have been translated into English and several other languages. This one may be equally popular; it is certainly a remarkable performance and must be almost without rivals for use on a desert island.

THE LANCET.

LONDON: SATURDAY, MAY 28, 1927.

DRUG STANDARDISATION.

THE last two decades have seen a tremendous increase in the quantity and diversity of proprietary drugs. Synthetic remedies have multiplied, vaccines and sera are sold by private firms on a scale which at the beginning of the century would have been considered incredible, and during the last few years there has appeared a whole new range of gland substances unknown in the catalogues of 20 years ago. Our remarks refer to products which follow upon scientific investigations conducted at properly equipped laboratories or centres of research, so that the steps taken are comprehensible to other workers. A therapeutic treasury is being thus amassed, the fruit of patient and active research, forming a constant and encouraging reminder of the creative vigour which informs medical science to-day. The store is being added to rapidly and, like every growing thing, exacts continual watchfulness to keep it within the bounds of practical utility. Sound guidance is essential to protect the practitioner and the public from disappointment or worse, and to unify and strengthen the efforts of investigators and manufacturers for the general good. Standards, fixed by those best qualified in pharmacology, should serve the double purpose of eliminating the products of firms who place their own advantage above that of the community, and of increasing the value of a good product by exactly determining that value and relating it to the value of similar preparations.

The international standardisation of drugs is one of the departments in which the League of Nations is performing effective and unobtrusive work in the interests of public health. Two conferences have already been held under the Standardisation Commission of the Hygiene Committee of the League at which the strands which the war cut through have been re-woven and a foundation has been laid for the fixing of criteria for some of the most important therapeutic substances. As is fitting, the standards of EHRLICH have been adopted for diphtheria and tetanus antitoxin, while on the Copenhagen Institute is placed the responsibility for conserving them.[1] Germany is to guard the purity of salvarsan through the firm of Georg and Speier in Hamburg, and France that of small-pox vaccine, the test being that invented some years ago by GROTH and GINS. The Standardisation Commission is still working on antipneumococcal and antimeningococcal serum, and on streptococcal antitoxin, a task to which recent American research on scarlatina has given especial significance. Apart from the efforts of the League, the Governments of many civilised nations are prosecuting independent inquiries. The Division of Pharmacology of the Hygienic Laboratory of the U.S. Public Health Service is giving attention to a group of products for which chemical tests are not commercially practicable with a view to standardising them biologically; the group includes the arsphenamines, insulin, digitalis, and pituitary extract. The results for pituitary and arsphenamine have already been adopted by the editors of the United States Pharmacopœia.[2]

We summarised in a recent number[3] the new regulations under the Therapeutic Substances Act. They form a fairly complete legislative filter for proprietary drugs, but would form a much better one if the necessary knowledge were available. Perhaps the time is not yet ripe for subjecting all drugs of whatever kind to a legally established potency and purity test. The makers with great names, who have always shown themselves staunch allies of medical science, can be trusted to do everything to perfect their products, and official safeguards would be a negligible stimulus in comparison with their zeal for personal reputation. Less scrupulous or skilful manufacturers are bound in the course of time to find their goods in little demand. However, in the absence of national or international standards there is no means of relating the potency of a given product from one factory with that of the same product made in another, a handicap alike to manufacturer, clinician, and experimenter. The regulations fix a standard for pituitary extract, but none for ergot or thyroid, not to mention a host of other examples which will readily occur to mind. It is to remedy what is admitted by all to be a dangerous and unsatisfactory state of affairs that the Advisory Council of Scientific and Industrial Research contemplates setting up a joint organisation with the Medical Research Council for undertaking research on the production of drugs and "allied problems," of which standardisation will undoubtedly be one, and for promoting similar research in universities and the chemical industry. The grounds for this decision are given in a brief but pregnant passage of the recent report[4] of the Advisory Council: "As matters stand now, a private firm or individual may develop a new remedy which preliminary trials indicate may be useful in the treatment of disease, but it is impossible to get such a remedy exhaustively investigated by a competent authority. The comparative lack of scientific knowledge of the real action of different chemical substances on the human body also hinders the development of medicine." The project is at present being discussed by a joint committee. It is, however, to be hoped that the ultimate scope of the new body, if and when it is materialised, will be much wider than that indicated. Chemotherapy is important enough, but unless the field of biotherapy is included as well, the venture will be seriously incomplete. Since the action of so many chemical substances can only be ascertained by biological experiments, the apparatus necessary for the latter class of research would be available in any case, and it may be that the Councils have already decided not to confine themselves to the study of pure chemotherapy. If this is so, it would be hard to mention a department of study on which public money would be better spent, and the sooner work is started the better. Something definite and concrete would then have been done to solve a problem that becomes more urgent every year.

[1] The reader may refer to a useful summary entitled: Die Standardisierung von biologischen Produkten, Forschungen u. Fortschritte, April 1st, 1927, p. 77.

[2] U.S. Public Health Service, Public Health Reports, Feb. 11th, 1927, p. 394.

[3] THE LANCET, April 23rd, p. 895.

[4] Report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1925–26. Cmd. 2782. H.M. Stationery Office. 3s.

THE DISINFECTION OF BEDDING.

BEDDING and blankets are particularly difficult to disinfect by heat. And this is natural, for as HAMER and HUTT point out,[1] they represent the highest outcome of man's ingenuity in devising material to check the passage of heat. Bedding does not suffer to the same extent as do blankets from prolonged exposure to heat, and there is a growing tendency to be content, in the case of bedding, with thorough sunning and airing. Brighton, for instance, gave up stoving mattresses 15 years ago without any increase in the number of return cases of the common exanthemata. But Margate disinfected more than 600 blankets last year, and blankets no doubt formed a considerable proportion of the 50,000 articles which went through the municipal disinfector at Newcastle-on-Tyne. It may be well, therefore, to recall certain experiments on chemical disinfection made by Dr. H. OSBORNE, medical officer of health of Salford, to which brief reference [2] has already been made. The outcome of one set of these experiments was that at blood temperature the disinfecting action of carbolic acid is twice as powerful as at ordinary room temperature and three times as powerful as at freezing-point. Dr. OSBORNE started from the position that blankets in particular are liable to be greatly deteriorated by exposure to a temperature of 115°–120° in the steam disinfector, although they will suffer less damage when saturated steam is used and the articles are not exposed to great heat in the subsequent drying. Many years ago the late Prof. SHERIDAN DELÉPINE showed, for the benefit of the Bradford wool industry, that even anthrax spores may be killed by exposure to warmed formaldehyde vapour, and the Salford Health Committee ha recently installed an apparatus at Ladywell Sanatorium for disinfecting blankets and woollen articles by the warm formalin vapour process. If the desired result can be obtained in this manner there seems no reason why the practice should not be more generally adopted, for one type of disinfector at least can readily be converted into a formaldehyde chamber.

It was DELÉPINE also who showed the great increase of efficacy brought about by warming the disinfectant solution. The experiments were carried out by Dr. OSBORNE under DELÉPINE'S direction, and the results appear for the first time in his report. A fixed time of exposure to the disinfectant was adopted as convenient—viz., 20 minutes—and the organisms used in the tests were the colon and plague bacilli, the golden staphylococcus, and anthrax spores. Both broth cultures and silk threads, soaked in an emulsion of the organism, were tested against carbolic acid. With the three non-sporing organisms disinfecting power increased proportionately with the heat. For example, threads impregnated with the colon bacillus were rendered sterile by 1 : 40 and 1 : 50 solutions at freezing-point, by 1 : 60 and 1 : 65 solutions at 13° C., and by 1 : 20 and 1 : 130 solutions at 36° C. Of the three the plague bacillus was the most easily killed. At blood heat the colon bacillus and the staphylococcus succumbed in solutions weaker than 1 : 100 and the plague bacillus in solutions of 1 : 500. Anthrax spores proved vastly more resistant. Thus a 1 : 50 solution of carbolic took 10 to 14 days to kill these spores at 37° C. and four days at 47° C., while a 1 : 20 solution took 12 to 18 hours at 37° C. and three to four hours at 47° C.; even liquefied carbolic acid failed to kill in nine days at 18° C., but required only two hours at 37° C. and 10 to 20 minutes at 47° C. The practical outcome of these experiments is that a comparatively weak solution of carbolic such as 1 : 100 may be depended upon to kill at blood heat all the non-sporing organisms for which disinfection is usually needed. In the rare cases where disinfection for anthrax is needed a much stronger solution and a longer exposure will be necessary, or recourse may be had to the warm formalin chamber. Now that these results obtained by Prof. DELÉPINE and Dr. OSBORNE have been published the matter will no doubt be followed up by other investigators using a variety of disinfectants. Such a sequel seems eminently desirable.

Modern practice tends to belittle the good done by ordinary attempts at fumigation and disinfection of the air of rooms, and to concentrate on the removal of bedding, hangings, and the like, to the public disinfecting station. It is therefore the more important that the householder should have confidence that the goods removed will be returned to him intact. There is at present a very natural but dangerous tendency to conceal any valued articles of clothing or bedding in order to save them from possible damage. We believe that inquiry would show that there is as much room for improvement in methods of disinfection by public authorities as there was found to be in the methods and apparatus used not long ago for the commercial pasteurisation of milk.

[1] A Manual of Hygiene. Methuen and Co. 1925, p. 544.
[2] THE LANCET, 1926, ii., 1240.

THE MEDICAL ASPECTS OF BIRTH CONTROL.

BIRTH control differs from the great majority of questions upon which the medical profession can claim first voice in that, for most people whether lay or medical, it is intimately bound up with ethical and religious convictions. For those persons whose religious beliefs with regard to birth control are fluid, disinterested scientific inquiry with regard to the merits and demerits of the various devices which are employed to avert pregnancy is possible, though it may not always be easy. But for those whose intimate beliefs are guided by religious precepts which are uncompromisingly hostile to birth control, a disinterested spirit of inquiry becomes a matter of difficulty, almost amounting to impossibility.

It is a peculiarity of human psychology that when a given practice is believed to be morally reprehensible, this practice cannot easily be regarded as, in any sense, generally expedient. It is rare to find a person opposing birth control on religious grounds who does not oppose it on all other grounds of expediency as well. For these reasons the formulation of an impartial opinion on the purely medical aspect of this question is difficult. The author of the critical review of a recent medical compendium of this subject, which we publish on another page, finds unconscious bias in the essays of some of the contributors. By most of the writers in the book, which has been hailed in certain quarters as a weighty medical condemnation of all forms of birth control, it is conceded that the practice of artificial conception control is justified in cases where the woman is unfit for pregnancy, or tainted with hereditary disease, though this practice is opposed when the woman is merely suffering from economic stress. But with regard, in either contingency, to the best method to be employed to avert conception this book is silent, though the majority of the writers are emphatic that the use of contraceptives is frequently

harmful. Seeing that conception can be avoided by numerous methods (those in commonest use are abstinence, restriction of intercourse to "safe" periods, coitus interruptus, the sheath, the vaginal douche after coitus, various kinds of soluble pessary and sponge or rubber occlusive devices), it is at least possible that these methods may vary in the degree to which they cause harm, and though a general survey of the subject designed for the lay public may not lend itself to any detailed discussion of the various methods in use, it is equally obvious that medical men and women must consider the possible effects on health or the production of sterility by each method separately before they can safely generalise. The commonest medical arguments used against birth control are that contraceptives cause sterility, genital disease, and psychoneuroses, and they are useless in preventing conception. The degree, if any, to which different contraceptives offend in these ways is capable of statistical formulation. Certain material for statistical treatment of the subject already exists. Through the Walworth centre of the Society for the Provision of Birth Control Clinics over 8000 women have passed.[1] Through Mrs. Marie Stopes's centre at Holloway 5000 patients had passed at the beginning of 1925,[2] and in the near future doubtless further material will be available. No statistical records are discussed in the essays.

Sir Arthur Newsholme's treatment of the problems arising from the declining birth-rate is clear and convincing. Likewise the original evidence adduced by Sir John Robertson of the nefarious influence wielded, in industrial districts, by manufacturers of contraceptives who wish to provide markets for their goods. Also of great interest is the contribution by Dr. Letitia Fairfield. Referring to the measure proposed recently in the House of Commons that local authorities should be empowered to increase expenditure, when deemed expedient, in conveying knowledge of birth control to married women who desire it, Dr. Fairfield argues that, if carried, this measure might result in the disintegration of the maternity and child welfare movement. "Of the 2112 clinics," writes Dr. Fairfield, "at work in 1925, 756 were voluntary, and in the maintenance and running of the latter, religious individuals and organisations play a prominent part. Not the least of the triumphs of the maternity and child welfare movement has been its unique influence in drawing together women in all classes and creeds in the service of the baby. With the coming of birth control all this happy coöperation will at once be a thing of the past, and the movement will be split from top to bottom. The cleavage would necessarily extend beyond the managing committee, the staff, and the subscribers, and would affect the patients and the reputation of the clinic" (p. 122). Dr. Fairfield also believes that if difficult economic conditions are to be held to provide justification for giving advice on conception control to women, the decision as to whether a given woman should or should not receive such advice cannot rest with the doctor alone. She points out that once the indications for use pass from medical to economic grounds, the discretion can no longer lie with the doctor whose opinions on such matters have no special value. If birth control is a legitimate remedy for poverty, it is only reasonable that those who feel the pinch should have the deciding word. Nor is it the least likely that Mr. and Mrs. X will accept dictation as to the number of children they can afford on their wages from a young Dr. Y sitting at a clinic, and acting on the report of Nurse Z. Both these arguments deserve careful consideration. The attitude hitherto adopted by the Ministry of Health towards this measure, as it was proposed in the House of Commons, has been one of official opposition qualified by unofficial concessions (vide the Archbishop of Canterbury's speech in the House of Lords, THE LANCET, May 22nd, 1926), of such a nature that many officers in charge of welfare centres do not at present know how much latitude they possess in this matter.

In view of the numerous divergences of opinion expressed by the various writers of this book, attention will be commanded by one point with regard to which there is complete unanimity. It is to the effect that the method of coitus interruptus is medically harmful. This contention is stated in exceedingly emphatic terms by Dr. Crichton-Miller, than whom there is no other contributor more competent to speak upon this matter. He says that modern medicine has established beyond dispute that this practice is profoundly detrimental, always to the man and frequently to the woman. Another consideration not put forward in the book—that the propaganda of contraceptive manufacturing firms frequently result in women buying occlusive pessaries that do not fit, and employing them when there are contra-indications to their use—suggests that occlusive pessaries should not be generally used by the community without medical guidance. Suppression of the sale of all contraceptives—supposing that this could ever be brought about—might have little effect on the declining birth-rate. But it would certainly result in an enormous increase of coitus interruptus. It might even be argued that other methods of preventing conception have at least this value, that they tend to dispossess coitus interruptus as the method of preference and of "least resistance." In the event of the pre-eminent harmfulness of coitus interruptus being firmly established, considerable medical importance might be attached to this contention.

We understand that evidence is accumulating that occlusive pessaries, when unfitted and when used without medical guidance, are more prone to cause disease than when properly fitted. Not only is the danger of cervical and vaginal trauma enhanced by using a pessary of the wrong size, but there is the danger that a disease such as gonorrhœal cervicitis may be present, in which case pathological discharges might be retained with serious consequences. Both these dangers could be reduced if it could be assured that all women who used contraceptives did so only under medical supervision. Yet Dr. Fairfield's arguments make it difficult to see how medical guidance can be provided throughout a wider sphere than that covered by the private societies which find clinics for the purpose. A possible solution to the difficulty might be found if the Ministry of Health were to leave the decision of whether or no birth control is to be taught at the antenatal and maternity centres—to the committees in charge of these centres, and if so, under what circumstances it should be taught. No compulsion either to permit or prohibit the giving of advice on birth control need be brought to bear on these committees. On the contrary, the question could be left for them to settle locally, like any other of the numerous questions that arise before them, in accordance with the local requirements and the local outlook. In whatever course he adopted in a given case, the doctor, under these circumstances, would be but fulfilling the approved decision of his committee, who would bear full responsibility for the decisions he took. In this way there would be no question of the Ministry of Health introducing contraception into the country by a side-door, no necessity for a movement that is partly voluntary being split by compulsion being brought to bear on it from without, and no question of a doctor in the charge of a centre arbitrarily dictating, on his own initiative, in a sphere in which he is not necessarily competent to form an opinion, to any of the patients who might come to him for medical advice.

[1] Annual Report, 1925–26. Wardale Press.
"The First Five Thousand." 1925. Bale and Danielsson.

Annotations.

"Ne quid nimis."

ODONTOLOGICAL COLLECTION AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ON Monday last the President of the College opened the new odontological collection in the Hunterian Museum, a magnificent collection and a great testimony to the devotion of the Odontological Section of the Royal Society of Medicine, and especially to Sir Frank Colyer. In a brief address Sir Berkeley Moynihan sketched the steps which had led to the formation of the collection. This, he said, dates back for 70 years when the leading dental surgeons of the country formed the Odontological Society of Great Britain and began at once to collect instructive specimens for exhibition at their meetings. As a result, when the Odontological Society came to be fused with the Royal Society of Medicine, no less than 5000 catalogued specimens were in charge of an indefatigable honorary curator; this was Sir Frank Colyer, who remains to-day in that position, "displaying," as the President said, "all the energy and enthusiasm and even more than the high competence of 20 years ago." It was recognised by all that this great collection could be regarded as of a national character while serving the particular interests of odontology, and accordingly, in 1908, the Royal Society of Medicine offered the collection in trust to the College, who one year later installed the specimens in their museum and defrayed the accompanying cost. Thus, as Sir Berkeley Moynihan reminded his hearers, to the specimens assembled by the Odontological Society there could be added the Tomes collection and John Hunter's original specimens, described by the speaker as "things of the utmost beauty of workmanship and beyond all price both from their scientific and their historical interest." For all comparative pathologists know that some of Hunter's most fundamental discoveries were the outcome of his study of teeth. The College acceded to the natural representations of the Odontological Section of the Royal Society of Medicine, the heirs of the old Odontological Society, that the Section should continue to take a direct interest in the welfare and growth of the collection, use its contents for their meetings and demonstrations, and advise in its general management, a part of the trust now faithfully carried out by Sir Frank Colyer and zealous colleagues. So that the number of the specimens has grown with amazing rapidity especially in the direction of the comparative pathology of the teeth—an important branch of knowledge which the curator has made peculiarly his own, utilising to the full the splendid material placed at his disposal by the Zoological Society. The President closed his address by referring to the recent addition to the odontological museum of the Howard Mummery bequest, the microscopes, instruments, and the material results of all that great investigator's labours being now ranged alongside of the Tomes collections.

MILK AND VITAMIN D.

RECENT experimental work in this country makes it probable that the parent substance of vitamin D, the antirachitic factor, is either ergosterol or a highly unsaturated sterol of similar constitution, which becomes active after it has absorbed ultra-violet light and lost its characteristic absorption band. The antirachitic value of milk varies, as everyone knows, within wide limits, and that of cow's milk—fresh, dried, or condensed—can be greatly increased by exposure to ultra-violet light. Presumably any ordinary cow's milk contains an amount of ergosterol which would be ample to render the milk strongly antirachitic if the sterol were present in the activated form. Now the age at which rickets begins to develop in children is nearly always well under one year, though it may progress if conditions are adverse until the child is several years old. Hence the importance attaching to attempts, such as those described in THE LANCET of April 30th, to raise the antirachitic value of winter cow's milk, the staple foodstuff of nearly all artificially fed infants. An experiment corresponding to that of Dr. J. Golding, Miss K. M. Soames, and Dr. S. S. Zilva has been carried out by Dr. A. A. Weech [1] in Baltimore, human mothers and their infants being the test-objects instead of cows and rats. Dr. Weech made his observations on negro mothers and their breast-fed babies, delivered in the Johns Hopkins Hospital, and attending welfare centres in the city. The prevalence of rickets in breast-fed coloured babies in the United States makes its prevention a very urgent problem. In a series of 260 mothers he endeavoured to get three out of every four to take approximately half an ounce of cod-liver oil daily from the time of confinement onwards; but only 47 of the series of infants were, from one cause or another, available for study when the baby was about six months old in January to May, 1925. Many infants, for example, had been given accessory feeds and were therefore excluded. One point of interest is that, in spite of great efforts on the part of the observers, only 12 of these mothers had received (and presumably consumed) as much as 40 oz. of cod-liver oil in six months, which means a daily average of 2½ drachms or (say) one and a half level teaspoonfuls. This emphasises the fact that cod-liver oil so given is unlikely to be generally used by nursing mothers, though possibly if smaller amounts had been ordered it would have been better taken. A similar attempt at prophylaxis by administering cod-liver oil to the mothers was made by the British and Austrian investigators in Vienna in 1920–1922, but was abandoned on account of the dislike to the oil shown by the mothers. However, Dr. Weech produces radiographic and clinical evidence that the quantities of oil taken in his experiment had a prophylactic value—that is to say, a certain amount of the antirachitic vitamin passed into the milk—though even the larger amounts of oil (48 and 58 oz. in six months) did not ensure freedom from rickets in the child. No indication is given as to whether this medication was fairly evenly distributed over the period of observation. Infants known to have had cod-liver oil directly administered were of course excluded, though the possibility that others of the series *may* have received some cannot be entirely ignored. The radiographic and blood findings—calcium and phosphorus in the serum—show a remarkably close parallel, and both indicate that the average degree of rickets in the children varied inversely with the amount of cod-liver oil taken by the mothers. Three years ago Dr. R. Wagner and Dr. H. Wimberger [2] in Vienna fed rachitic in-patient infants on the milk of cows receiving cod-liver oil in doses increasing from 50 to 300 g. daily during the winter. These children received, it is true, a diet high in carbohydrate; the milk, however, did not prove definitely curative, and it is clear that much more work is necessary before final conclusions can be formulated.

INCREASE OF SYPHILIS IN FRANCE.

SOME months ago [3] Prof. Josef Jadassohn, of Breslau, addressed a questionnaire to syphilologists in various countries, and the results indicated that, except in France, there was a general decline of syphilis throughout Europe. Similar conclusions have been reached by Dr. Marcel Petit.[4] Both in Paris and in the provinces, he finds, there has been a distinct increase in the incidence of syphilis since 1924 in striking contrast with its decline in other countries. In Scandinavian countries, for instance,

[1] Bulletin Johns Hopkins Hospital, April, 1927.
[2] Zeitsch. f. Kinderhk., 1926, xl., 295.
[3] THE LANCET, 1926, ii., 1125.
[4] Thèse de Paris, 1926, No. 501.

the disease is said to have disappeared almost completely. In Switzerland its rapid and continuous decline is shown by the number of primary chancres in Prof. Oltramare's clinic at Geneva having fallen from 104 in 1919 to 2 in 1925. In Belgium likewise there has been a decrease; in the province of Antwerp, for example, the number of primary sores, which was 203 in 1920, fell to 10 in the first eight months of 1925 and to nil in the September of the same year. A similar decline was also shown in Spanish statistics. This decrease of syphilis is attributed by the syphilologists of the countries in question partly to the fact that State regulation of prostitution has been abolished and partly to the good effects of treatment with salvarsan. The persistence of the disease in France appears to be due to two principal groups of causes. The first includes factors which have long been in existence—namely, ignorance on the part of the patient and ignorance on the part of medical practitioners. The second group comprises those causes which have come into operation only within recent years—e.g., the immigration of infected workmen from abroad, especially Arabs and Poles, the increase of prostitution due to economic conditions, and the abandonment of intravenous injections through fear of accidents. Dr. Petit urges the taking of energetic measures to stem this rising flood of syphilis.

OSTEOPATHS AND THE MEDICAL ACT.

THE vexed question of an osteopath's right to recover fees in the law courts seems to require answer by some tribunal of high authority. A few weeks ago the deputy county court judge sitting at Marylebone entered judgment for the defendant in an action in which an osteopath had claimed £30 9*s*. for fees for treating the defendant's wife for nervous disability and facial neuralgia. This decision was based on the familiar language of Section 32 of the Medical Act of 1858, which debars the recovery in a court of law of any charge "for any medical or surgical advice, attendance, or for the performance of any operation" unless the plaintiff proves at the trial that he is registered under the Act. The plaintiff at the Marylebone court had no British medical degree, but had an American degree as doctor of osteopathy. He appealed to the Divisional Court on the ground that he had claimed fees for manual treatment, not for advice given; he said the defendant's wife, when she first visited him, knew perfectly well the nature of osteopathic treatment. His counsel submitted that the circumstances were almost exactly similar to those of an earlier case (Hall *v.* Trotter) in which it was held that an osteopath could recover fees for treatment rendered. The Divisional Court felt itself bound by the authority of Hall *v.* Trotter (decided in 1921) and sent the case back to the Marylebone County Court for a new trial.

The facts in Hall *v.* Trotter are, unfortunately, not very fully reported. It is important to know whether the facts amounted to "advice" or "attendance" or "the performance of an operation" within the meaning of Section 32. An osteopath sues on an implied contract to pay him a reasonable sum for the skilled services he renders. Presumably the court must satisfy itself of the substantial nature of those services and must not merely accept the description which the osteopath gives to them. It may be, as Mr. Justice Acton observed in the recent case, that an osteopath's charges can on analysis be split up into items for advice and items for manual treatment, and that fees can be recovered for the latter and not for the former. Presumably the defendant takes the view that his wife went to the osteopath for advice and to obtain such treatment as he might advise. It may be that the osteopath replies: "I gave no advice, or, if I did, I made no charge for it." But even then we are in doubt as to the meaning of "attendance." Is it attending upon a patient or attending to a patient? And is not manipulative treatment (which sometimes involves the breaking down of adhesions or the readjustment of something displaced) an "operation," or can no operation be performed without a knife? Judges are not likely to construe the word "operation" in such a manner as to prevent a masseur from recovering his charges. And in Hennan *v.* Duckworth, in 1904, Mr. Justice Wills interpreted the word "operation" in the corresponding section of the Dentists Act as meaning an operation "in the surgical sense," going on to decide that an unregistered practitioner might recover a charge for supplying false teeth but not for fitting or filling. In Hall *v.* Trotter Mr. Justice Horridge breezily declined to be led into definitions. He said that the plaintiff (a woman) gave no advice, but merely gave certain treatment to the body. Mr. Justice Shearman, who agreed, said she used her knowledge of anatomy to help her to determine the part of the body to which she should apply the treatment she had been specifically called in to give. But he added that he was far from saying that anyone who liked to call himself an osteopath could charge for any service which he chose to render. In concurring with Mr. Justice Acton in ordering a new trial in the recent appeal, Mr. Justice Talbot observed that, had it not been for the decision in Hall *v.* Trotter, a very strong argument might have been urged in support of the Marylebone County Court judge's judgment. It is to be hoped, therefore, that the Marylebone case will be brought before the highest legal tribunal, so that the legal uncertainty may be removed.

SWIMMING BATHS.

IT is now 15 years since Dr. Graham Forbes called attention to the dangers of the public swimming bath in a paper published in *School Hygiene* (1912). Since then much has been written on the subject, especially in America, and at a meeting of the Society of Medical Officers of Schools on May 20th Dr. Forbes was able to refer to a formidable list of papers recording various infections, minor and major, traced to the public bath. He quoted the results of a questionnaire addressed to 2000 American doctors in 41 States. 70 per cent. of the replies expressed a belief in the positive danger of the bath; 38 per cent. ascribed this mainly to the water, and 31 per cent. mainly to the towels and bathing suits. Several definite and authenticated epidemics were reported—7 of conjunctivitis, 9 of diseases of the skin, 2 of otitis media, 2 of tonsillitis, and 1 of sinus infection. Colds and catarrhs were also recorded in large numbers; ringworm, typhoid fever, venereal disease, and even poliomyelitis were attributed in some cases to public baths. Bacteriological counts had found 4000 bacteria per c.cm. of bath water, derived from the skin and saliva of the bathers and from fæcal contamination. Although most of these organisms are normally saprophytic they are, as Dr. Forbes pointed out, capable of becoming pathogenic under certain circumstances of lowered bodily resistance, particularly the chill following long immersion. In most children the clinical thermometer gives a lower reading after bathing. The local effect of chilling the nasal and pharyngeal mucosa must also be considered, as well as the absence in man of the anatomical adaptation to immersion which characterises aquatic mammals and birds. The rapid increase in bathers, and the recognition of the dangers involved, have made public authorities consider their legal liability in the event of an infection being traced to their baths. In America a very high standard has been set up by the American Public Health Association; bathers are made to take a preliminary wash with soap, and a two-way vertical shower plays down on the head and up between the legs; they are warned to avoid expectoration and blowing water out of the mouth. Such an interference with personal liberty would never, Dr. Forbes feared, be countenanced in this country, although in London baths the attendants are supposed to refuse admission to very dirty children. In one only are bathers required to wash themselves first. The untreated swimming bath is a shocking sight, as Dr. F. W.

Alexander vividly recalled at the same meeting. The water soon becomes like pea-soup, the smell of clothes and towels is overpowering, and on the bottom a slimy mass of hair and dirt collects. Dr. Alexander described the difficulties and successes of his pioneer work on the public baths of Poplar, where the first electrolytic apparatus was installed in 1908. Hypochlorite of magnesium is used there with great success [1] in the proportion of one part of chlorine to one or two million parts of water. The plant consists of five Mather and Platt 30-amp. graphode electrolysers, each with eight cells working in series off the council's supply. The total output of the plant is about 300 gallons a day at a cost of approximately 1*s.* 6*d.* per gallon of liquor containing 10 g. of available chlorine per litre. Bath water treated with this "electrolytic fluid" keeps clear longer, and is said to be fresher and more invigorating. As Dr. Alexander pointed out, such a method must have as its object the improvement of the water, and not economy in changing. The rule now is that fresh water is supplied after every 1000 bathers, but the matter is not entirely one for rule of thumb, as very often in hot weather the water will suddenly become opaque and dirty; the time of changing must depend on temperature, aeration, and other factors. The reason for this sudden turbidity is obscure; Dr. Alexander ascribes it to an increase in bacteria and organic matter. Electrolytic fluid will not clear it up again.

While chlorination of some sort is a useful practical method, it is generally agreed that the ideal treatment is filtration, aeration, and sterilisation, as carried out in the open-air bath at Harrow, described by several speakers as almost ideal. To keep the water not only bacteriologically pure but also clear, colourless, and attractive means such constant changing of the water that the baths could only be in use for half the time. Many big baths take two or three days to empty, clean, and refill, as Mr. E. C. Wilkinson pointed out in describing the best plants for a continuous system of purification. In the first place, the baths should be so built that they can be easily cleaned, and secondly, they should be lined with white glazed brick or cement, and fitted with a patent non-slip curb and an overflow trough to serve as spittoon and scum-collector, with a spray pipe to drive the scum to one end. The cost of upkeep should be reduced by having as little woodwork and painting as possible. The purification plant should include a battery of two or more filters with an aeration chamber, and a pump with an air-compressor. The water is taken through a strainer, and at the same time the chemical reagent is drawn in and mixed with it. It then passes to the filter and thence to the aeration chamber, and finally through a heater. Thus it is continually purified and passed round into the bath again every six, eight, or ten hours as desired. If there are two filters, one can be cleaned while the other is still filtering by a reverse flow of the water—a very important point, since filters soon get out of order if not cleaned regularly. To keep the water bacteriologically safe Mr. Wilkinson recommended the addition of chlorine in some form to the bath at night, while it should also be aerated by the cascade method or by blowing air into it. With such an apparatus it is possible to go on using the same water for a few years, although Mr. Wilkinson thought it wiser to change the water once every 12 months. In his opinion the plant should pay for itself in three or four years, quite apart from the inestimable benefit to the public health. The cost of an apparatus to deal with a bath of 370,000 gallons, passing the whole of the water through in eight and a half hours, would lie between £3000 and £4000 with about £40 per annum for maintenance. To turn out and refill such a bath would take three days each time and cost £230 in the course of a year, so that the outlay on the filtration plant would soon be paid back, apart from the ability of the properly-equipped bath to accommodate extra bathers. Harrow had had an increase of over 25 per cent. of visitors after the plant was installed. To these safeguards of construction Mr. Wilkinson added those of regular bacteriological inspection, the proper washing and disinfection of towels and suits, and hygienic education of all bathers. Instructors should give lectures from time to time on the use of the bath, showers, and the preliminary wash. There should be a suction-sweeper for the bottom of the bath.

However ideal such an installation may be, its practicability for all swimming baths may arouse discussion. Dr. L. R. Lemprière held that for public schools the cost would be prohibitive, whereas Dr. E. H. Nash maintained that expenditure so closely involving the health of children ought not to be called in question by school authorities. If purchased outside, the electrolytic fluid would cost perhaps £20 for the season for a school bath of 250,000 gallons, whilst even cheaper is nightly sprinkling of the surface with chloros fluid. Changing the water in such a bath costs £7 and takes three days each time out of the short swimming season. Copper sulphate and ultra-violet rays as disinfectants are not satisfactory, according to Dr. Forbes, and the merits of any simple form of disinfection have to be weighed against those of more complicated and expensive plants. It is certainly time that public school authorities followed public bodies in considering carefully the evidence for and against the dangers of untreated swimming baths.

[1] THE LANCET, 1926, i., 357.

TROPICAL DISEASES IN THE LIGHT OF HISTORY.

THE current number of the *Tropical Diseases Bulletin* contains a section dealing with the historical aspects of tropical diseases. Records have been consulted from British, Portuguese, Dutch, French, American, Italian, and German sources, and a vast amount of varied and interesting information is presented, including descriptions of disease by the early Portuguese navigators and colonists, and the earliest notices of plague, malaria, leprosy, and scurvy. In a paper on the Portuguese of the Renaissance, read at Coimbra in 1925, Carlos Franca clearly showed that the missionaries and explorers of the fifteenth and sixteenth centuries were not concerned alone with souls and commerce, but had an astonishing flair for recognising diseased conditions and for describing them. Thus João dos Santos, a Dominican missionary, who visited East Africa in 1586, has left us a description of night-blindness, a complaint regarded as peculiar to Mozambique, Duarte Lopes noted the guinea-worm, while other observers describe the chigger flea, various myiases, cholera, snake poisoning, syphilis, and yaws. Other papers referred to in the *Bulletin* which will repay reading in the original are by Colonel W. P. MacArthur, "Old-Time Plague in Britain," by Prof. Ichok, "La peste dans le passé et à notre époque," and by F. E. C. Coudray, "La peste à l'armée d'Orient de la 1re République." This excursion into tropical history leads us to hope that some learned member of the Bureau will look into the list of poisonous snakes and other animals of the Libyan deserts as given by Lucan in Book IX. of the Pharsalia (ll. 519 et seq.) where the effects of their bites are discussed with a vivid wealth of singularly unpleasant detail. Light might also be thrown upon the vexed question as to whether the Salpuga or Solfuga was a scorpion or a spider. We hope that this innovation will develop into a permanent feature of the *Bulletin*.

THE CENTENARY OF THE DISCOVERY OF BRIGHT'S DISEASE.

A LUNCHEON will be held in the Governors' Court Room of Guy's Hospital on Friday, July 8th, to celebrate the centenary of the discovery of Bright's disease by Dr. Richard Bright, who was physician to Guy's Hospital from 1820 to 1843. The Earl of Balfour will be present, and subsequent to the lunch the Bright Memorial Oration will be delivered by Dr. W. S. Thayer, Emeritus Professor of Medicine, Johns Hopkins University, Baltimore.

It may be recalled that in THE LANCET of Oct. 10th, 1925, Sir William Hale-White, in an interesting summary of Bright's life and work, gave the date from which the centenary should be counted as Oct. 12th, 1825, and the discrepancy may seem to require explanation, though it is contained in Sir William Hale-White's words. He is dating the centenary from the commencement of Bright's investigations which were definitely started by an observation of the symptoms manifested in an intemperate sailor admitted into Guy's on Oct. 12th, 1825. It was of this case that Bright said, after noting the "kidneys granulated throughout," the large heart, and the ascites, that in his opinion "the disease of the kidneys was the first established." His renowned "Reports of Medical Cases selected with a view of Illustrating the Symptoms and Cure of Diseases by a reference to Morbid Anatomy" appeared in two volumes, the first in 1827, the second in 1830; so that 1825 was the year when Bright began the study of the syndrome for ever associated with his name, and 1827, the year when his splendid observations, transformed from theory into fact, were ready for general publication.

DENTAL BOARD PROBLEMS.

IN his address from the chair at the opening of the twelfth session of the Dental Board of the United Kingdom Sir Francis Acland noted with satisfaction how few were the allegations of offence against a profession which had more than 14,000 names on its register. What had, however, been giving the Board serious thought was the question of dental clinics in relation to advertising and canvassing. A firm or organisation with a genuine desire to benefit its staff or members, and without any financial interest in the arrangement, may provide a dentist with a consulting-room or a surgery, on or off their premises, and may, or may not, also pay him a fee. His work for them may be part-time only, but attendance upon their staff will give him an introduction to practice with the families and friends of those who come as patients. The firm or organisation may call the attention of their staff or members to the fact that those who need attention to their teeth can attend, or are advised to attend, their clinic, giving the name of the dentist in attendance. There can be no doubt, said Sir Francis Acland, that this sort of thing is not at all popular in the profession. It is for the fortunate individual a short cut to practice which is regarded as unfair to others who have no chance of being provided with patients ready-made. But the question which the Board may have to decide does not turn on popularity; it is whether the dentist concerned has been guilty of "infamous or disgraceful conduct in a professional respect," or, to use the exact words of the notice on advertising and canvassing, has adopted a practice "contrary to the public interest and discreditable to the profession of dentistry." It may be assumed (quoting from this notice) that he has not "acquiesced in the publication of any notice directing attention to his professional skill, knowledge, service, or qualifications, or depreciating those of others," for the announcement of the clinic contains no such element. Has he then adopted the practice "of advertising, whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage"? He has not done so directly. The question is, "Has he advertised indirectly?" Having brought the question so far Sir Francis Acland said that it could only be rightly answered on a particular case and in view of the circumstances of it. Another class of case, that in which an approved society under the Health Insurance Acts says to a member who is entitled to treatment under their scheme, "This is our dentist, or these few persons are our dentists, you must go to him, or to one of them, if you require treatment," involves denial of free choice. If a dentist knew that this practice was being adopted in connexion with him and permitted it, he would be liable therefore to disciplinary action by the Dental Board.

Turning to the financial assistance of likely pupils for the dental profession, Sir Francis Acland corrected a mistake made by Colonel Wedgwood when speaking in Parliament on a Bill for the registration of architects. He then said that since dentistry had been made a closed profession it had been made impossible to anyone to qualify unless he was able to lay out £1000 on the training. "No misconception," he said, "could be greater. The fold may be closed except through the proper entrance, but in no profession is the entrance so wide open for those who seem likely to be able to take advantage of the training, regardless of their means. This fact ought to be widely known, and we shall have to consider means of making it even better known than it is to head masters of schools and others, who are likely to be in contact with those who may, with the assistance of our bursaries, become well-qualified practitioners." The Educational Grants Committee in their report to the Board stated that of the 75 candidates for bursaries during the last 12 months 60 were accepted. Deans of dental schools find that the Board's bursars compare favourably with the ordinary student in regard to all essential respects. One dean remarks that he is tempted to think it might be an advantage if all students came in in the same way. Of the 207 students who so far have been awarded bursaries, 40 (38 men and 2 women) have qualified.

ANTENATAL TEACHING IN THE MEDICAL SCHOOLS.

THE importance of directing the attention of medical students throughout their hospital career to the preventive aspects of medicine is emphasised by the General Medical Council in an additional resolution to the instructions issued with regard to professional education in medicine. The Maternity and Child Welfare Group of the Society of Medical Officers of Health is alive to the need for exciting interest among students in the welfare of prospective mothers and infants, and has sought to ascertain by means of a questionnaire addressed to medical schools and qualifying bodies what steps are being taken to comply with the ruling of the General Medical Council that students must obtain instruction and pass an examination in antenatal conditions and infant hygiene. From replies received the gratifying conclusion is drawn that the majority of the schools are fully alive to the value and importance of these branches of preventive teaching and have made arrangements for instruction of students in advance of the requirements imposed on them for examination. The Maternity and Child Welfare Group note, however, that the term "infant hygiene" as used by the G.M.C. is subject to a variety of interpretations, and desire to state that, in their opinion, infant hygiene should include the study of the normal child up to the age of 5 years. The replies from the medical schools imply that for the most part the term is understood to mean the hygiene of the child beyond the age of 1 month and that the student may thus receive minimal instruction, if any, in the management of the child beyond puerperium. The existing arrangements in some schools for the clinical initiation of students into these particular subjects seem to the inquirers to be defective. For the interest and information of those universities which have not yet made specific arrangements for clinical instruction of students in antenatal conditions and infant hygiene the Committee have set out in full two comprehensive schemes, which are already in operation at St. Thomas's Hospital and the London (R.F.H.) School of Medicine for Women respectively. The scheme at St. Thomas's Hospital was set out recently by Dr. John Fairbairn in an address to the Glasgow Obstetrical Society, and is evidently one which could be adopted with advantage elsewhere. The clinical teaching of obstetrics, gynæcology, and pædiatrics extends over a period of six consecutive months.

The first month is devoted to the study of the pregnant woman in the antenatal clinic and to the infant welfare clinics; the student thus obtains a view of the whole system of prevention early in his term. For a month he is drilled in the maternity ward (600 deliveries per annum), and then for a month goes out in the district. The next two months of his term are devoted to the study of the diseases of women in out-patient and in-patient departments, where the results of the injuries and infections of child-bed are seen. In his final two months he returns to the infant welfare clinics, and attends both out- and in-patient departments for the diseases of children, where again he sees the effects of failure of prevention, and continues his gynæcological practice by attendance on two afternoons a week in the out-patient department for diseases of women. Each hospital and medical school has its own special difficulties to overcome in cramming the curriculum into five or six brief years, but the scheme outlined appears to succeed in securing a more logical sequence of teaching than many of us were privileged to secure. It may be that in the future the student will be enabled to view his course in a better perspective in all its branches. For the more haphazard system or lack of system in the past it can only be said that the sorting out and rearranging of miscellaneous and apparently unconnected facts was a valuable foretaste of the conditions in which medical practice would have to be carried on by the student when qualified.

THE Royal Institute of Public Health is holding its annual congress at Ghent from Wednesday, June 1st, to Monday, the 6th. The President will be Lord Burnham, and there will be five sections, devoted to State Medicine and Municipal Hygiene; Naval, Military, Air and Tropical Diseases; Industrial Hygiene; Pathology, Bacteriology and Biochemistry; and Women and the Public Health. They will meet under the presidency, respectively, of Sir Alfred Mond, Air Vice-Marshal D. Munro, Lord Leverhulme, Sir Berkeley Moynihan, and Lady Burnham. The inaugural meeting, at 10.30 A.M. on Wednesday, is to be held in the Palais des Fêtes, when the King of the Belgians, accompanied by the Queen, will open the proceedings. A reception at the Hotel de Ville is arranged for the same day, whilst other functions include a reception at the University, when honorary degrees will be conferred, a banquet, and a gala performance at the Royal French Theatre. The Governor of Eastern Flanders will receive members of the congress at the Château de Beirvelde on Sunday afternoon, and in the morning Mass will be celebrated at the Cathedral of St. Bavon. The following day will be devoted to excursions in the neighbourhood.

NEXT week 120 members of the Inter-State Post-Graduate Assembly of North America are to visit London and a series of lectures will be delivered on the mornings of June 1st, 2nd, and 3rd at Dartmouth House, the headquarters of the English-speaking Union, 37, Charles-street, W. 1. The sessions will be opened at 10.15 A.M. on June 1st by Lord Reading and Lord Dawson of Penn. In the afternoons a number of London hospitals have arranged to receive the guests, and on Thursday, June 2nd, at 5.30 P.M., Sir Arthur Keith, F.R.S., will give a demonstration at the Royal College of Surgeons. On the following day at 8.30 P.M. Sir James Berry (the President) and Lady Berry will receive members of the Assembly and ladies at the Royal Society of Medicine, where Dr. G. W. C. Kaye, of the National Physical Laboratory, will speak on X Rays and some of their Uses. Lady Swaythling and other members of the English-speaking Union are to give a reception to the ladies at Dartmouth House on June 2nd, from 4 to 6 P.M.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXV.

THE TREATMENT OF INSECT BITES AND STINGS.

INSECT venoms may have one or several of the following effects: (*a*) hæmolytic; (*b*) neurotoxic; (*c*) irritant—producing local inflammation; (*d*) producing profound and even fatal shock.

Mosquitoes, Midges, and Flies.

The nature and source of the poison introduced by a mosquito or gnat has been for long supposed to be the secretion of the salivary glands, but Nuttall and Shipley in 1903 and Schaudinn in 1904 showed that the evidence for this is far from conclusive. Nuttall and Shipley could find no evidence of hæmolysis or delayed coagulation produced by an emulsion of the salivary glands of *Culex pipiens*. Schaudinn found that the irritation of a mosquito bite was due, not to the saliva, but to an enzyme contained in a commensal yeast which is a constant inhabitant of the œsophageal diverticula of the mosquito. The yeast cells are injected into the wound by the insect when feeding, but are mostly sucked back again if the mosquito is allowed to finish its meal. In the last year or two several deaths have been reported following mosquito bites which were apparently highly septic. It seems likely that these results have been due to the mosquitoes having temporarily harboured virulent streptococci in addition to the normal yeast cells. Horse-fly bites also are often highly septic, and cases are on record where anthrax has been inoculated by the bite of a horse-fly.

Individual preventive measures against mosquito, midge, and fly bites consist in keeping the insects at a distance either by smoke from a fire or from tobacco, or by the application to the skin of some essential oil, such as that of citronella, which is a constituent of numerous proprietary articles designed for the purpose. A useful prescription is—

℞ Ol. cedri, ʒiss.
Ol. citronellæ, ʒiiiss.
Spt. camphoræ ad ʒi., misce.

This should be smeared on the skin of the exposed parts as often as is necessary. Cod-liver oil used in the same way has been highly recommended. The irritation of a mosquito or fly bite may be allayed by gently rubbing the puncture with a moist cake of soap, or by applying a 1 per cent. alcoholic solution of menthol, or 1–20 watery carbolic lotion. Hydrogen peroxide or weak ammonia solution dabbed on are useful also. If the bite shows any signs of being a septic one, it is important that measures should be taken at the earliest moment to combat the sepsis, either by constantly renewed hot boric fomentations or, if a limb is implicated, hot saline arm or leg baths; or Bier's treatment or antistreptococcal serum also may be advisable.

Lice, Bugs, and Fleas.

Methods for the destruction of lice, bugs, and fleas scarcely come within the scope of this article, but it may be mentioned that as a preventive against the bites of fleas the application to the skin of oil of pennyroyal, oil of birch tar (which has the not unpleasant smell of Russia leather), or oil of lavender; or the dusting of powdered pyrethrum, menthol, or camphor into the socks or underclothing are of service. It should be remembered that fleas breed in cracks in floors and wainscots, that unoccupied fleas usually lie in wait on the floor, so that anti-flea preparations should be applied chiefly to one's legs or their coverings.

The irritation of a flea-bite can be allayed by applications of 1–20 carbolic acid lotion or by the following ointments:—

℞	or
Ac. carbol, ℥x.	Hyd. ammon, gr. x.
Menthol, gr. v.	Liq. picis carb., ʒi.
Zinc oxide, ʒi.	Ung. paraffin B.P. ad ʒi.
Adipem prep. ad ʒi.	

Or by applying one drop of—

Ac. carbol
Spt. vini. meth. } Partes æquales.

Some fortunate individuals appear to be naturally distasteful to fleas, and others possess, or acquire, a relative immunity to the effects of their bites. The irritation caused by poison hairs of "woolly-bear" caterpillars may be allayed by bathing with a weak solution of ammonia or 1–20 carbolic lotion, or the application of moist sodium bicarbonate. Castellani and Chalmers advise bathing with a 2 per cent. sodium bicarbonate lotion followed by the application of a 10 per cent. ichthyol ointment. Kirkland (1907) advised that the following lotion should be well rubbed in:—

℞ Ac. carbol., gr. xxx.
Zinc ox., ʒiv.
Aq. calcis ad ʒviii.
M. ft. lotio.

Harvest Bugs.

The familiar "harvest bugs," which are really the six-legged larval forms of various species of the acarid *Trombidium*, are normally parasitic on various insects, but readily attack man when he gives them the opportunity by walking through the grass or vegetation on which they are living.

These larvæ are usually supposed to burrow into the human skin, or at least to penetrate the hair follicles, but Ewing in U.S.A. (1921), as a result of some careful observations on his own leg and ankle, found that this was not so. The mites were from three to seven times too large to enter a sweat pore or hair follicle and were merely attached by their mouth parts, about 80 per cent. on the smooth surface of the skin and 20 per cent. at the bases of hairs with their mouth parts thrust down the hair follicles. The characteristic burning sensation began in a few hours and increased for 36 hours.

Protection from the attacks of these larval mites can be obtained by sprinkling flowers of sulphur or powdered naphthaline into the stockings and underclothes from the knee downwards. The mites can be removed by mopping the skin with benzine or petrol or taking a warm salt bath, and the itching can be allayed by one of the ointments suggested for flea bites.

Bees, Wasps, and Hornets.

The sting of a bee, wasp, or hornet is always painful and may be dangerous. Danger may arise on account of the situation of the sting—e.g., in the tongue or fauces—when the great swelling which ensues in these regions may obstruct respiration and cause death from suffocation. Such accidents are apt to happen to those who devour fruit without inspection sufficient to detect a concealed wasp.

It is often stated that the serious symptoms of collapse and even death which occasionally follow a bee or wasp sting in a healthy person are due to the sting having penetrated a vein so that the venom is injected directly into the circulation. This may sometimes be the case. Another explanation may be that occasionally patients become anaphylactic to bee or wasp venom, and certainly some of the cases described have shown symptoms which might be explained as profound anaphylactic shock. It may be possible also that the venom of individual insects may, under certain conditions, be of exception potency.

The sting of the bee and wasp is complicated, but its working is entirely reflex, so that it is easy to get a severe sting from a bee's abdomen which has been for many hours separated from its thorax. The poison sac and glands are usually left behind by the bee attached to the sting. The poison-forming apparatus consists of a long acid-forming gland and a much smaller alkali-forming one. A detailed study of the poison of some 25,000 bees was published by Joseph Langer in 1897. He found it to consist of formic acid plus an organic base. The pure poison placed on uninjured skin produced absolutely no irritant effect, but caused a marked reaction on the mucous membrane of nose or eye. The slightest break in the skin surface, or a needle puncture through a drop of the poison caused typical effects—i.e., local necrosis surrounded by hyperæmia, œdema, and infiltration of leucocytes. Further studies on bee poison were published by F. Flury in 1920. He had investigated the poison from some hundred thousand bees and found that apart from the formic acid a considerable portion seemed to be lipoid in character. By hydrolysis he was able to split off cholin, glycerol, phosphoric acid, palmitic and other fatty acids, an indol derivative, presumably tryptophane, and an unidentified non-nitrogenous component. The latter he believed to be the active component of bee poison. It produced hæmolysis and behaved like the hæmolytic saponins. Flury regards bee poison as a complex of lecithin with basic components, showing resemblances on the one hand to the protein-free sapotoxins, and on the other to poisons of the cantharidin type. Some snake venoms include saponin-like poisons (krotalotoxin and ophiotoxin) which account for their hæmolytic properties. The potency of cantharidin as an irritant poison explains the local inflammatory reaction resulting from a bee sting.

Treatment of a bee or wasp sting consists, first of all, in removing the sting. This should *not* be laid hold of with forceps or fingers and pulled out. Such a proceeding will squeeze the poison sac and force more poison into the wound. The sting should be lifted or scraped out with the blade of a knife or the edge of a long finger-nail. The application usually recommended is solution of ammonia. It is important that this should be dabbed on and not rubbed, or it will rapidly remove the epidermis. In the absence of ammonia, gentle rubbing with a moist cake of soap may be tried. The application of a bag of washing blue is a household remedy of great popularity. Hot fomentations are useful in relieving the pain of severe stings. While the poison of the bee is acid, it was pointed out by E. R. Speyer in 1919 that that of the wasp is alkaline and that therefore in the case of wasp stings an acid application, such as vinegar, should be more effective in relieving the pain than an alkali.

J. F. D. Donnelly (1898) recommended ½ gr. of cocaine dissolved in a few drops of water and rubbed on the puncture with the finger. He found that this almost removed the pain, and a second application 1–2 hours later completed the cure. One would expect hypodermic injections to be even more effective. Pugnat (1918) found that the immediate local application of a saturated solution of aloes in alcohol was of material benefit in treatment of wasp stings and insect bites. He found that if the solution were rubbed in immediately no local or general reaction took place. Langer, in his experimental studies, found that bee poison was very rapidly destroyed by pepsin, but I can find no record of this preparation having been used clinically.

The treatment of cases where sudden collapse follows the sting of a bee must be on the usual lines for the treatment of shock and collapse.

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LEEDS MINISTRY OF PENSIONS HOSPITAL.—Princess Mary last week opened this new hospital at Chapel Allerton, on the outskirts of Leeds. The nucleus of the building was Gledhow Grove, the former residence of Mr. F. J. Kitson. The hospital will hold 260 patients, and there are recreation grounds and workshops which will be rented by firms making artificial limbs. The arrangements will permit of dealing with 40 out-patients daily. The institution is described as the finest Ministry of Pensions hospital in the country.

Special Articles.

MEDICINE AND THE LAW.

Allegation of Mistaken Diagnosis: Medical Officer of Health's Successful Libel Action.

DURING the small-pox epidemic at Southport last January a Liverpool evening newspaper published some unfortunate paragraphs which suggested that cases of chicken-pox were being diagnosed as small-pox. One such statement was headed "Not Small-pox after all —Some Southport Cases Breathe Again." The statements were totally untrue. All the cases sent to the isolation hospital at the date when these paragraphs appeared were cases of small-pox and were retained at the hospital as such, and in no instance was a case of chicken-pox diagnosed as small-pox. These misstatements were obviously unhelpful to the medical officer of health who was contending with the epidemic. It is notoriously difficult to persuade some parents to let their children be sent off to an isolation hospital, and, if a responsible newspaper suggests that wrong diagnoses are being made and that sufferers from chicken-pox are being exposed to small-pox infection in hospital, the task is certainly not made easier. Moreover, the misstatements were also a serious libel upon the medical officer of health, both in his capacity as an official and in his capacity as a medical practitioner. In these circumstances an action was begun against the printers and publishers of the newspaper by Dr. G. C. Barnes, the medical officer of health for Southport, and Dr. W. E. Fitzgerald, the deputy medical officer. The case came on before Mr. Justice Roche at the Liverpool Assizes early in the present month, and the newspaper (which had already published an apology) very frankly stated that it had found its statements to be incorrect and very handsomely expressed its regret. Judgment was entered for the plaintiffs on agreed terms, the defendants paying the nominal sum of £100 damages and undertaking to pay the plaintiffs' full costs as between solicitor and client. It was explained that Dr. Barnes and Dr. Fitzgerald, though they had suffered considerable damage and annoyance, did not desire to make any pecuniary profit out of the proceedings which they had felt themselves compelled to institute; and it was intimated that they would hand over to some charitable institution the sum received by way of damages.

Doctor's Libel Action against Solicitor: Privilege Exceeded.

Later in the month a doctor was successful as plaintiff in another libel action—this time in the High Court in Dublin. Mr. Justice Hanna's judgment, which outlined the facts, showed that Dr. Henry McKeogh, of Portroe, Killaloe, Co. Clare, medical officer of health of Portroe, had had occasion to complain of a nurse who acted as midwife in the district. After various complaints Dr. McKeogh refused to attend cases with her; he complained informally about her to the medical inspector of the Department of Local Government and Public Health, and finally, after a further case of puerperal fever had occurred, he reported formally to the department. That report formed, it appears, the ground of a separate libel action by the nurse against Dr. McKeogh; it also led to the proceedings in which the latter was plaintiff. The nurse went to a solicitor in Limerick, who wrote on her behalf to the Limerick County Council. The object of the letter was the entirely proper purpose of putting forward the nurse's reply to the complaint against her. The letter, however, went beyond mere defence. It contained the following sentence: "She will be able to prove when the time comes that there was greater reason for complaint against Dr. McKeogh in the treatment of his patients than there was against her." This being a damaging statement reflecting upon his professional skill and care, Dr. McKeogh thereupon brought a libel action against the solicitor. The judge found that the statement was without foundation. Indeed, no attempt was made to justify it, the defendant relying upon the supposed immunity of a lawyer's letter. Mr. Justice Hanna rejected this defence. Words spoken in court, he said, by an advocate (whether solicitor or counsel) are absolutely privileged even if something defamatory is uttered with actual and deliberate malice. But a solicitor writing to third parties is in no better position than his client. He is not free to write anything his client may suggest. He must not allow himself to be the conduit-pipe for every defamatory allegation of a chagrined or malignant litigant. The statement inserted in the letter relating to Dr. McKeogh was intended as a countercharge and was not relevant to the occasion. It went beyond the reasonable limits of self-defence. Though the letter was otherwise written upon a privileged occasion and there was no evidence of express malice, the passage which attacked Dr. McKeogh was outside the privilege and was untrue in fact. The court awarded the plaintiff £25 damages.

NOTES FROM INDIA.

The Calcutta Congress.

MEDICAL men in Calcutta are displaying considerable enthusiasm at the prospect of having the seventh session of the Congress of the Far Eastern Association of Tropical Medicine in Calcutta in December next.[1] Preliminary arrangements on an elaborate scale are already in hand, and it is understood that a full-time officer of the Indian Medical Service will be appointed soon to have charge of the arrangements. A sub-committee has already been formed to carry on a publicity campaign. Four classes of delegates and members will attend the Congress—viz., official foreign delegates, estimated at 70; non-official foreign members, estimated at 50; official delegates from the local and Indian Governments and Indian States, numbering about 50, and private members from India numbering about 350.

A Lecture on the Congress.

In anticipation of the Congress to be held in December, Lieut.-Colonel A. D. Stewart recently delivered an interesting address at the Calcutta Rotary Club on Internationalism in Public Health, his object being to draw attention to the importance of the Congress and its influence and activities. He began by stating that the public health of a nation ultimately depends on the knowledge of health matters possessed by the individual, on the way in which he applies this knowledge, and on the amount of money which he is willing to pay in support of his conviction. He also pointed out that attention has been focused upon India as the possible storehouse and distributor of cholera, plague, and small-pox in the East, and indeed throughout the world. In the past 20 years plague killed 10½ million people in India, and influenza, which appeared in 1919, destroyed about 8½ million lives within two years. The average span of life in India is 25 years instead of 50 as it is in more fortunate countries. Colonel Stewart ended by referring to the importance of controlling disease internationally and by describing the present organisations for this purpose.

Indian Medical Service.

According to new rules issued by the Government of India, all officers appointed in India to the Indian Medical Service are to be sent to England within the first year of their service to take the junior Royal Army Medical Corps course. All officers of the I.M.S., including those of Asiatic domicile, will also be required before promotion to the rank of Major and between the seventh and tenth years of their service to complete the senior medical college course,

[1] See THE LANCET, May 7th, p. 1007.

Millbank. Attendance at both these courses will be regarded as duty and will carry with it free passage to and from the United Kingdom. Officers of the I.M.S. of Asiatic domicile, whether in military or civil employ, will be allowed a period of study leave immediately after completing the senior officer's course at Millbank.

The present strength of the I.M.S. is: permanent officers, 495 European and 152 Indian; temporary officers, 5 European and 130 Indian.

Ranchi Radium Institute.

The Radium Institute at Ranchi is the only institution in India where there is a good supply of radium. In his report for the past year, Major H. K. Rowntree, I.M.S., superintendent of the institute, points out that it is impossible for patients to come from all parts of India to Ranchi and therefore, if India is not to lag behind the rest of the world in its treatment of cancer, it is incumbent upon local governments to make provision for treatment by radium or radium emanation in a large centre in each province. Major Rowntree points out further that many cases are sent up for treatment as a forlorn hope when every other treatment has failed. The number of new cases treated during the year was 247. There is no steady annual increase in the number of patients, which he attributes to the fact that the existence of this institute is not well known either to the public or to the medical profession. It is also found that a number of patients abandon treatment for financial reasons; it is difficult for the common ryot to support himself and his sick attendant at Ranchi where the cost of living is comparatively high, and after one application of radium the majority of patients run away to their homes.

The International Convention.

At the International Sanitary Convention of 1926 [2] India was, for the first time, represented by a separate delegation, but approval of the draft proposals is not unqualified here. Commenting on its recommendations, the Bengal Chamber of Commerce criticises the decision to put upon shipowners the cost of measures of surveillance that may arise from conditions of health in their countries. Although ratification of the Convention would not, in fact, greatly increase the charges upon shipowners, it would involve the ports in heavy expenditure, and the Chamber maintains that this burden should fairly be borne by the general revenues of the country. The Chamber also objects to Part III. of the Convention's proposals—which deals with arrangements for pilgrim traffic—on the ground that for 30 years India has enforced sanitary regulations which have proved effectual, and it would be a mistake to supersede them. In general the Chamber thinks that the draft Convention should be considerably modified before being ratified by the Government of India.

The Cholera Epidemic.

Cholera is raging in Bengal and in the southern part of the Bombay Presidency; during the last quarter of 1926 15,000 deaths were reported. In February there was a decline, but since March the epidemic has taken a turn for the worse, and in many villages the population is said to have been decimated. The position in Calcutta is also disquieting, and Government are taking energetic steps to prevent the spread of the disease.

The last quarterly report of the medical officer of health for Bombay municipality states that the number of deaths from all causes was 7300, which was less by 4781 than the mean for the first quarter during the previous ten years.

During 1926, it is reported, there were 704 deaths from snakebite in the Punjab. This is about 12 per cent. less than in the previous year, and the reduction in mortality fully justifies the measures employed for the destruction of snakes.

[2] THE LANCET, 1926, ii., 770.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Medical Practitioners Bill.

THIS Bill passed through the Senate unchanged last week, and may by now have received the Governor-General's consent. It does not come into force, however, until legislative authority has been given at Westminster to the international agreement on which it is based. The satisfactory solution of a problem which at one time gave rise to almost unbounded alarm is no small tribute to the ingenuity and patience of the Ministers concerned.

Medicine and the General Election.

It is a matter of much regret to the entire medical profession in the Irish Free State that Mr. T. Hennessy, F.R.S.C.I., one of the deputies for the South Division of Dublin City, has decided not to seek re-election to the Dail. He has found that his health was likely to be adversely affected by the strain his duties entailed. His retirement from the Dail is a real public loss. He had the respect and affection of members of all parties, and his deep interest in and knowledge of matters concerning health gave him a right to speak with authority. Most of the other medical men who are on the Dail are seeking re-election. Sir James Craig, one of the three members for Dublin University, in common with his colleagues, has to stand a contest, an outside candidate having appeared in the field. There are contests also in South Dublin and in Waterford where Mr. Myles Keogh and Mr. Vincent White are respectively candidates.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

County Borough of Bootle.

Statistics for 1926:—Population, 84,580. Birth-rate, 22·0. Death-rates per 1000 of the population: All causes, 11·9; tuberculosis, 1·47; cancer, 1·12; respiratory diseases with influenza, 2·5; heart disease, 0·7. Death-rates per 1000 births: neonatal, 39; infant, 100; maternal from childbirth, 1·1.

Dr. F. T. H. Wood shows that the guardians gave more indoor and outdoor relief during 1926 than in 1925, but that the monthly averages of adult males, women, and juveniles on the unemployed registers were less. Steps are being taken to secure amendments of local Acts in order to facilitate the substitution of portable bins for fixed ashpits. At the end of 1926 there were about 8000 houses in need of this improvement. Since the close of the year a new refuse disposal plant, combining salvage and incineration, has been put into operation. The cost of construction was about £22,500. The dust is separated by screening for manure, the remainder is sorted by hand and by magnetic drums as it passes on to the furnaces by a revolving belt, and the furnace clinker is used for making paving, concrete, and mortar.

Progress is being made in enforcing the provisions of the new milk order, which have been operative since Oct. 1st, but in some cases the small yard space makes it difficult to provide a cooling shed outside the cowhouse. The number of cows kept in the borough has decreased to 360 from the pre-war figure of 550. Dr. Wood records an improvement in the cleanliness of the local milk-supply, judging by its bacterial content. Of 28 samples examined 7 reached the standard of "Certified" milk and 5 of "Grade A" milk, but 9 were "grossly contaminated." Two of the samples contained tubercle bacilli.

No small-pox occurred in Bootle, but its presence in the country evidently stimulated vaccination, as there were 1671 successfully vaccinated infants as compared with 1149 in the previous year. This marks a return to the experience of a few years ago, when 90 per cent. of the infants received protection. Infantile diarrhœa

has been notifiable for some years during the third quarter. During 1926 both notifications and deaths showed an increase and the death-rate from diarrhœa and enteritis under 2 years of age was double the English rate of 8·7. The use of the Schick test for scarlet fever admissions since 1924 shows that 50 out of 81 children under 5 years were positive, 55 out of 129 of the 5–10 age-group, 12 out of 54 of the 10–15, 4 out of 15 of the 15–20, and only 1 out of 8 above the age of 20. Of four new probationer nurses one only was positive and had to be immunised.

Referring to the high tuberculosis death-rate, Dr. Wood points out that this excess occurs in neighbouring Merseyside areas and that the Bootle rate for the ten years ended in 1925 was 1·8. During 1926 two-thirds of the pulmonary deaths occurred between 20 and 55 years of age and two-thirds of the non-pulmonary under 15 years of age. A light treatment clinic by general irradiation at Linacre Hospital, opened in October, 1925, has given satisfactory results, although its eccentric position interferes with regular attendance of the out-patients. Some of the outstanding successes were a marasmic 3 months' old baby, a man with sacro-iliac disease and a sinus, and another man with tuberculous epididymitis and a sinus. The year's results of the V.D. centre show that only 23 cases were discharged after completion of treatment and observation, whereas 69 ceased attendance before completion of treatment and 49 before final tests of cure.

To the maternity home 16 cases were admitted for antenatal treatment and 167 for confinement. There were no maternal deaths, eight stillbirths, and four deaths of infants within ten days of birth. The average duration of stay was 14·1 days, and the cost worked out at £9 per case, of which £2·6 was contributed by the patients. The neonatal mortality has been practically stationary in Bootle for 25 years. There were 25 births of illegitimate infants and 10 deaths, equivalent to a rate of 400. The council have decided, in accordance with the Ministry's suggestion, not to attempt to recover the fees paid by them to medical practitioners called in to give aid in the case of discharge from the newly-born infants' eyes.

Dr. Wood, in discussing the housing shortage, shows that nearly 500 houses have been erected by the municipality during the last seven years and that this new housing provision "can be repeated without risk of overbuilding." The percentage of families sharing a house, which in 1901 and 1911 was 10·6, in 1921 was 13·6; and in order to revert to the old standard 1371 new houses are needed.

Borough of Stafford.

1926 statistics:—Population, 29,270. Birth-rate, 16·4. Death-rates per 1000 of the population: All causes, 10·8; tuberculosis, 1·06; cancer, 1·26; respiratory diseases with influenza, 2·1; heart disease, 1·8. Death-rates per 1000 births: neonatal, 33; infant, 60; maternal from child-birth, 6·2.

Dr. J. T. MacNab reports that the progress of the new bio-aeration sewage disposal scheme has been delayed by difficulty in dealing with the spent liquor from the gasworks. Experiments are being made with a view to reducing the amount of this liquor discharged into the sewers, and it is hoped that the difficulty has now been overcome.

The water-supply has been carried to Dunston, four miles from Stafford, and the houses on the line connected up. The new reinforced concrete service reservoir, to hold a million gallons, has been begun. Six of eight private pumps at Doxey were found to yield polluted water and three of the houses have been connected to the mains. The trouble with stoppages of waste-water closets continues. There were 1374 stoppages among 2243 closets, and in 85 cases the trouble was caused by cans and scrubbing-brushes being dropped down the w.c. Uncovered wooden tubs for house refuse are being gradually replaced by iron bins.

The town is fairly free from smoke except at the north end, where 22 stacks from the salt works emit smoke over a large area and cause a considerable nuisance. There is said to be a difficulty in evaporating brine without causing smoke. It is difficult to understand why. Fish-frying has been declared an offensive trade. Several new applications were refused on account of unsuitability of premises, and the public demand is said to be well met by the 24 fried-fish shops on the register. The new houses erected numbered 156, more than in any other year since the war, about half municipal and half by private enterprise with subsidy. Municipal houses only accommodate families catered for by the private builder before the war and do not touch the needs of the unskilled worker or casual labourer with a family of young children. Dr. MacNab does not favour flats, but advocates houses in rows or terraces at even more than 20 to the acre and the omission of the separate bath-room and hot-water cylinder and the substitution of a bath in the scullery with hot water run into it from a copper on a slightly higher level.

The non-structural regulations of the Milk Order of 1926 came into force on Oct. 1st, and a good deal of difficulty is being experienced in enforcing the clean milk provisions with respect to cleanliness of udders, milking-stools, &c., but some progress is being made, and the good results obtained in one or two cases are being put forward as examples and incentives to the laggards. The 48 premises, on which ice-cream is made, were kept in a generally clean condition. Stafford appears to have about one fried-fish shop and two ice-cream shops for 1000 of the population.

The more severe cases of scarlet fever are being treated with antitoxin with encouraging results, and immunisation against diphtheria is offered through the welfare centre for children under school age. Of the 29 infant deaths 17 were from congenital malformations and premature birth.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Name of district.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.*
Margate	3,300	2,865	977	970	11·9
West Bromwich	14,354‡	—†	4,281	3,695	28·5
Dumfries-shire	12,781‡	—†	4,908	3,552	9·63

* Excluding uncleanliness and dental defects. † Not given.
‡ Numbers for which accommodation is provided.

Margate.

Dr. Rowan McCombe shows that the attendance of children at the treatment clinic has not diminished under the scheme by which payment for treatment is collected from parents. Payment is not pressed for, but is rather accepted as a voluntary contribution, and the total amount received has been satisfactory. Delicate pre-school children attend the infant welfare centre and are examined by the school medical officer. A feature of the Margate schools is the encouragement given to children to bring their midday meals and the arrangements made for warming the food. The nature of the food and the method of taking it can be supervised, the long walks to and from home during the winter months are avoided, and the children are happy together. Dr. McCombe comments on the small amount of heart disease and the absence of rheumatism among the school population, giving as a reason the dry and bracing climate of Margate.

Kent is badly in need of provision for mental defectives; it is almost impossible to get accommodation for this class of pupil. A committee has been formed for the Isle of Thanet, and an occupation centre is to be started in Margate.

Ninety-one children are employed in the district. All are strong and healthy, and but few are working overtime, which satisfactory state of affairs has fully

justified the appointment of an inspector during the busy season to ensure that the Act relating to employed children is enforced.

West Bromwich C.B.

The year 1926 was apparently not an easy one for the medical department. A temporary assistant was employed to complete the medical inspection in the schools, and pressure of work no doubt accounts for the somewhat meagre information given in the report by Dr. A. B. Hamilton, the deputy school medical officer. It contains little besides the statistical details required by the Board. Records from the maternity and child welfare centre are obtained, but no system of automatic transfer to the school medical department is in operation. A survey of all cripples attending school showed that out of 76, 47 had had complete or partial treatment and 29 had had none. There is no orthopædic scheme, although the authority defrays the whole or part of the cost in necessitous cases attending the orthopædic hospital. Minor postural defects are treated by remedial exercises at the clinic, and breathing exercises are taught to children after their tonsils and adenoids have been removed. There are no open-air schools or school baths, and no provision is made for blind, deaf, epileptic, and mentally or physically defective children. An experiment to demonstrate the properties of vitaglass was started in Greets Green infants' department.

Dumfriesshire.

Dr. John Ritchie, the S.M.O., says that there is much room for improvement in the hygiene of the schools. The statistical details required in Scotland are not the same as in England and Wales, and this, together with a different method of recording defects, largely accounts for the small proportion of defects found. For instance, pediculosis is recorded in 0·18 per cent. of children, but this only refers to those on whom lice were discovered "in considerable numbers," and the incidence of impetigo is given separately for the head and body. The personal factor in all estimates of general condition makes individual comparison almost impossible. Dr. Ritchie records the nutrition of Dumfriesshire children as: "Above the average," 43·03 per cent.; "average," 27·09 per cent.; and "below average," 29·76 per cent., but it is not stated whether any formula or figures of weight and height were used as a standard, or whether the estimate is purely clinical, and it can hardly be assumed that so large a percentage of the children are of first-class nutrition. Dr. J. F. Davidson compares the heights and weights of children examined between 1911–15 with those of children seen between 1919 and 1924, and concludes that post-war children compare favourably with the pre-war in nearly every age-group. Very detailed statistical tables are given, showing the percentage of defects, in boys and girls, of all the major and minor defects found during the medical examinations. An immense amount of work is here represented, the value of which is doubtful. The annual report offers a great opportunity of interesting the parents and the layman and, by drawing conclusions from the conditions found, of showing the way to health. To record the findings statistically is not enough.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 14TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 271 (last week 337); scarlet fever, 1411; diphtheria, 838; enteric fever, 75; pneumonia, 973; puerperal fever, 41; puerperal pyrexia, 127; cerebro-spinal fever, 13; acute poliomyelitis, 6; acute polio-encephalitis, 2; encephalitis lethargica, 25; continued fever, 1; dysentery, 9; ophthalmia neonatorum, 123.

Cases of small-pox were notified from the counties of London 2 (Hampstead and Poplar), Derby 4, Durham 102, Lancaster 4, Lincoln Lindsey 1 (Spilsby), Northumberland 17, Warwick 2 (Coventry and Nuneaton), Yorks North Riding 1, West Riding 65, Monmouth 73. The last of the quarantine cases has been discharged from Hendon (Middlesex).

Deaths.—In the aggregate of great towns, including London, there were 1 (1) deaths from small-pox, none from enteric fever, 57 (0) from measles, 5 (0) from scarlet fever, 24 (8) from whooping-cough, 30 (3) from diphtheria, 59 (13) from diarrhœa and enteritis under 2 years, and 47 (8) from influenza. The figures in parentheses are those for London itself, where the small-pox death was registered from Hampstead.

The Case of Typhus Fever in Sunderland.

We are indebted to Dr. E. Thorp, temporary M.O.H. of the county borough of Sunderland, for the following notes on the case of typhus fever notified in the Registrar-General's weekly return No. 18, 1927, as having occurred in Sunderland Port Sanitary District.

The port sanitary inspectors had visited the s.s. *Capitaine Henri Rallier* on April 28th, the day of its arrival in this port, when the captain reported "All well." The ship was revisited the following day, when the master reported that a seaman aged 19 years had been attended by Dr. Ayre Smith, who ordered his removal to the Royal Infirmary, Sunderland, as suffering from pyrexia and pulmonary congestion. In view of the doctor's report the case was treated as non-infectious. The ship left Sunderland on April 30th and proceeded to Dieppe. The patient at the Royal Infirmary was placed under the care of Dr. J. B. Waters, who asked me to see the man. I saw him on May 2nd, but came to no definite conclusion. On May 3rd I had him removed to our isolation hospital as a suspicious case of typhus, and on May 4th Dr. W. V. Shaw, of the Ministry of Health, and myself were both of the opinion that it was a definite case of typhus fever.

The history as given at the Royal Infirmary was of pain in chest of six days' duration, malaise, fever, and a headache for the first three days. No vomiting; bowels constipated; rash had appeared on body and limbs during the past few days. On admission a faint purplish subcuticular rash not raised above surface was present on abdomen and chest, and more marked on thighs and legs—extensor aspect. Faint staining on right arm and back—remains of rashes. The mottling became more marked the next day. On May 2nd the pathological report showed a negative Weil-Felix reaction and a negative Widal. The urine continued bile, also blood.

The patient had joined the ship at Havre and had only been 18 days on board when removed to the infirmary. The louse found was pediculus pubis.

BARBADOS GENERAL HOSPITAL.—The report has been issued of a subcommittee of the Public Health Commission appointed to inquire into the system of administration of the General Hospital, Barbados. The institution costs about £17,000 per annum, most of which is provided by the Colonial Treasury; there is accommodation for 220 patients; the average number of in-patients is 3566 and of out-patients and casualties 35,000. There are three resident surgeons, one of whom is on duty for 24 hours at a time, while the other two have what the committee think "must often be a burdensome amount of relaxation." The salary of the resident surgeon, which has not been increased for 30 years, is insufficient to secure the filling of the post by men not only of good training, but with some experience of the working of a hospital. The salary should be approximately £600 a year, with free quarters, and the committee make the carefully restrained comment that "the practice of appointing inexperienced men who very often have just graduated in medicine to be responsible for the administration and a certain amount of the medical work needs reconsideration." The standard of training for the nursing staff "seems to require improvement." There is no definite scheme of training, lectures by the resident surgeons are "given casually," and examinations "may be deferred indefinitely." Finally the committee find that "there is no work performed which is worth the name of pathological investigation," and they recommend that the bacteriologist should be responsible for all such work. The general death-rate of the hospital during the last five years was 7·8, including cases which died within 48 hours of admission. The number of patients cured or improved is in accordance with the present standard of knowledge.

Correspondence.

"Audi alteram partem."

MAZE TESTS AND SOCIAL ADAPTABILITY.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 20th, 1926, there appeared an article by Dr. R. F. Jarrett which dealt in part with the application of my maze tests to 100 youths in the Borstal Institution. Following this article a letter from Dr. R. Evelyn Lucas was published which stated that:—

"The Porteus 'maze' tests would hardly seem the best choice for determining the individual's apperceptive abilities. Their value lies in estimating powers of mental representation and planfulness in dealing with geometrical figures rather than with a concrete situation such as the individual is likely to meet with in ordinary daily life. To be sure Porteus himself claims considerably more than this for the test, but his statements have not been verified by other investigators. In my opinion, by far the most valuable test of this nature, and one which has a fairly high correlation with social apperceptions, is Healy's 'Pictorial Completion II.'"

The number of misleading statements included in this brief paragraph is such that it would seem desirable that a brief summary of the present status of the maze test be given for your readers who might otherwise be led astray by ill-informed or unsupported "opinions." In the first place, Dr. Jarrett was probably not concerned particularly with the individuals' apperceptive abilities. If, however, he was concerned with estimating, the tendency of his subjects to exercise planning and prudence in a simple situation or conversely to act impulsively or in a mentally confused manner when faced with a new problem, then probably Dr. Jarrett's choice of tests was a wise one. In any case he is not alone in this matter. A recent survey of mental clinics in New York State, by Boyakin [1] showed that over 40 per cent. of these clinics were using the maze test. The Pintner-Paterson scale was next on the list, and amongst the other 68 tests listed the combined percentages for Healy Completion I and II was 25 per cent. If, as your correspondent states, this test is so much more valuable than the maze it is evidently not as well known in America as it should be.

In the second place, your correspondent's description of the maze test as estimating "powers of mental representation of geometrical figures," would be recognised by any psychologist as being very inadequate, so much so as to make one wonder whether Miss Lucas has really had any experience at all with the tests. Such powers enter into an intelligent response to the tests to a very small degree unless the ability to trace a course with the eye for a few inches can be considered "mental representation of geometrical figures."

The further statement that I have made claims for the tests which have not been supported by other investigators is best answered by a brief summary of some of the literature evidently unknown to your correspondent. Morgenthau in "Some Well-Known Mental Tests Evaluated and Compared" [2] a monograph written with the advice of Drs. Healy and Bronner, comes to the following conclusion:—

"The results obtained as to value of the tests were as follows: Stanford-Binet, Pintner, Alpha II. and Porteus are valuable tests and should be included in individual case studies. In spite of their unmeasured reliability, Myers and Pictorial Completion II. are also valuable tests, and should likewise be included."

She found that P.C. II. and Porteus maze test correlated about the same with the Binet and rather highly with each other; the coefficient (0·70) being high enough to indicate a goodly measure of agreement and yet low enough to show that they are not both measuring the same capacities. This indicates that P.C. II. is a very valuable test, but gives no shred of evidence for the opinion that it is far more valuable than the rest.

Arthur and Woodrow tried a number of performance tests with large numbers of clinic cases in St. Paul, U.S.A., and found that as regards discriminative value—i.e., power to distinguish between ability at different chronological levels (as between eight and nine year ability for example)—the maze was among the best of the performance tests now available. Virginia Graham Taylor working with Jewish and Italian children obtained confirmatory data.

In an article, Comparison of Stanford and Porteus Tests in Several Types of Social Inadequacy, Cornell and Lowden's results confirm the claim that the maze tests are better measures of social adaptability than are the verbal tests. The constitutional psychopathic inferior group had a median Stanford-Binet of 13·25 years, as against 12·25 mental age score by the Porteus. A non-psychotic but mal-adjusted group had a Binet median age of 14·08 years and a maze score of 12·25 years—quite a significant difference. The so-called mentally defective group included cases on parole from institutions and they scored 10·21 years by the Binet, 11 years by the maze. Considering these high levels they were certainly not a typical feeble-minded group.[3]

In the Institute of Juvenile Research in Chicago, Worthington compared the maze with other performance tests and reported the results in an article, Study of Some Commonly Used Performance Tests. On the basis mainly of high correlation with the Stanford-Binet, inter-correlations, and normal distribution of results she picked four out of the eleven tests as being the best substitutes for a Binet Examination when this could not be applied. The four tests were Pintner-Toops, Seguin Form Board, Porteus Maze, and Trabue Completion.

In Frances Gaw's Study of Performance Tests [4] the introspections of seven psychologists who took the tests included the maze and Kelly's tests as the only tests of temperamental capacities. As regards the validity of the tests, that is to say actual proof that they do measure in part social adaptability, there are few studies, since to gather the necessary observations to serve as criteria is admittedly difficult. Elizabeth Ross working at Baldovan Institution found a correlation of 0·76 between Porteus age and ability in Handwork, the Binet mental age correlating with Handwork 0·69. In another investigation the Porteus correlated 0·81 with industrial rating of inmates, the Binet also 0·81, but the average of Binet and Porteus mental 0·87. Industrial capacity is of course an important factor in social adaptability.

Wildenskov has applied the tests at the Keller Institute in Denmark and confirmed results previously obtained by me (Porteus Labyrintskala, Nyt Tidsskrift for Abnormvoesenet). He states in his conclusions, that at the time of testing 100 inmates—

"information was obtained of the practical ability of each individual from the people with whom they have been placed. A comparison shows that in the Porteus scale we have got a valuable addition to our test material."

Herring reports the results of a comparison between an experienced examiner's diagnosis of feeblemindedness by means of observation of the child at work on the Porteus maze, plus the consideration of the Binet, Wilmer Form Board, Army Designs, case history, psychiatric and medical findings. He states that this diagnosis of degree of feeblemindedness practically agreed with the Porteus test results, a correlation of ·937 being obtained.[5] As regards the validity of the tests for diagnostic purposes this evidence is of value.

Finally, as regards the application of these tests to delinquents, Doll in a paper entitled Education of Juvenile Delinquents [6] states:—

"The Porteus motor intelligence tests should be applied whenever possible. Certain boys who may obtain high

[1] Journal of Educational Psychology, September, 1926.
[2] Archives of Psychology, 52.
[3] Journal of Abnormal and Social Psychology, April–June, 1923.
[4] British Journal of Psychology, April, 1925.
[5] Journal of Educational Psychology, April, 1926.
[6] Journal of Delinquency, March, 1921.

scores in the group tests or in the Binet test may prove to have low intelligence when examined by the Porteus tests, and many boys whose intelligence is low in the verbal tests frequently score high in the Porteus tests. These exceptional cases are numerous and important. Moreover, the Porteus tests seem to furnish a reliable estimate of industrial capacity and of temperamental type. They specially indicate such qualities of intelligence as ability to plan, strength of inhibitions and carefulness of execution. In addition to these advantages the Porteus tests yield a mental ages core in terms of practical social efficiency as opposed to the intellectual efficiency revealed by the Binet tests."

Considering Doll's experience as psychologist in the reformatories and jails of New Jersey his testimony must be regarded as having weight in this matter. It might be noted that I have never made any claims for the tests which go beyond this statement of Doll's.

In conclusion, might I state once again what I have already in many publications given as my position in this matter. I do not, and have never claimed that the maze tests are adequate measures of temperament, or moral character, or intelligence. They do seem, however, to give some measure of certain important temperamental or social traits. I have never advocated that they should be applied alone nor their single verdict relied upon except where other tests are clearly inapplicable. They are by no means perfect instruments of diagnosis or research—the psychopathic frequently, and the steady-going defective rarely, may slip through their meshes so that failure in the tests is always more significant than success. They are not tests of planning capacity as such, *but of the individual's tendency to use planning capacity in a simple situation.* Unless practice effects are allowed for, they cannot safely be reapplied to the same children and hence their reliability cannot be tested by the ordinary reliability coefficient formulæ. Taken by themselves, as measures of moral worth, they are decidedly inadequate. I should as soon expect every criminal to fail in the tests as I should every insane person. In other words I have no more faith in the maze tests than I have in tests in general, they merely represent one angle of approach to the problem of social and mental diagnosis and are not to be relied upon too implicitly. In short, perhaps the best that can be said of the maze tests is that they are among the best of a poor lot. However, until someone devises a better test for temperamental traits I shall continue to recommend their use. One claim also I shall continue to make without fear of refutation—there is no performance test in use at present which has had so much work done on it in the way of proving the test itself and of providing data for its interpretation, nor has any other performance test been more widely or more variously employed.

The belief that I have made other claims for the tests may be due to the fact that I have consistently criticised the practice, at one time so common in America, of relying entirely for all purposes of mental diagnosis and prognosis on a Binet test alone. This attitude has been twisted by some to mean that I believed that my test would do everything that was left undone by the Binet and that any examiner who was armed with a maze test and a Binet was thereby a clinical psychologist!

Might I add that Dr. Healy's work, and particularly his attitude to mental testing in general, is to my mind thoroughly admirable. In clinical work I believe in the adequacy of his method and I use some of his tests. P.C. II. is a very valuable test, and will occupy a permanent place in clinical examinations. It differs considerably in nature from the maze and as each has its value there is no need for drawing invidious comparisons between them.

I am, Sir, yours faithfully,

S. D. PORTEUS,
Professor of Clinical Psychology, University of Hawaii.

March 16th, 1927.

RADIOGRAPHY IN THE TREATMENT OF FRACTURES.

To the Editor of THE LANCET.

SIR,—We are astonished to see in the columns of THE LANCET for last week a letter, under this heading, signed by Dr. C. Leonard Williams, honorary secretary of the Todmorden Medical Society, referring to a circular letter issued by the Medical Defence Union to its members only, and which was for obvious reasons marked "private and confidential."

This circular letter was in the nature of friendly warning and advice to members of the Medical Defence Union from the Council, based on its experience in a large number of recent cases. It is obvious that this circular letter has been misinterpreted, but public discussion of a matter of this sort in THE LANCET could only defeat the object of our Council in marking this letter "private and confidential," and would bring about the very results which are shadowed in the earlier paragraphs of Dr. Williams's letter.

Needless to say, our Council is prepared to discuss the matter privately with any member who shares the views expressed in Dr. Williams's letter, and we have no doubt that any fears that he may share with Dr. Williams and his Society will be set at rest.

We are, Sir, yours faithfully,

HERBERT F. WATERHOUSE,
President.

JAMES NEAL,
General Secretary.

Bedford-square, W.C., May 23rd, 1927.

A POINT UNDER THE MIDWIVES ACTS.

To the Editor of THE LANCET.

SIR,—Medical practitioners have recently been refused payment for assisting midwives in emergencies by the Devon County Council on the ground that the accounts for such assistance have not been sent in within two months from the date of the first attendance. Reading Section 2, Subsection 2, of the Midwives Act, 1926, and Section 14, Subsection 2, of the Midwives Act, 1918, together, it is a condition of payment of such fees that the accounts must be rendered within two months from the date of the first attendance, and, therefore, strictly speaking, the Devon County Council are within their rights, as laid down by statute, in refusing to consider a claim for fees under the Midwives Acts which are rendered after the two months statutory period.

Unfortunately no notice of this regulation is conveyed to the medical practitioners, and those who are not familiar with the Midwives Acts are consequently not aware that it is important to render their accounts as soon as possible. Even if there are solid grounds for stringently requiring early rendering of such accounts it would seem to be only fair that due intimation of this most unusual condition should be communicated to the practitioners concerned.

The matter is not one of interest to the medical profession only, but also concerns the public very seriously, since the result of failure to obtain payment under such circumstances has led medical practitioners to decline in future to attend cases on the summons of a midwife. It would be very unfortunate if this state of affairs should continue or extend.

I am, Sir, yours faithfully,

HUGH WOODS,
General Secretary, London and Counties Medical Protection Society, Ltd.

Victory House, Leicester-square, London, W.C. 2,
May 19th, 1927.

*** In the absence of official warning as to the regulations enacting the rendering of these accounts within two months, it is hoped that practitioners will make a careful note of the above communication. The need for promptness, insisted on by the Midwives Acts, is due to the migratory nature of the constituency concerned.—ED. L.

THE NATIONAL UNION OF SCIENTIFIC WORKERS.

To the Editor of THE LANCET.

SIR,—In an annotation which appeared in your issue of March 19th it is suggested that the National Union of Scientific Workers will find insuperable the difficulty of combining scientists in different lines of work. There is much to be said on the other side, but it is not my present purpose to say it; my object is merely to protest that you might have expressed that opinion without insulting the members of a profession as honourable as your own. You contrast university teachers with "those whose object in life is (or from their occupation ought to be) to earn dividends for shareholders," and in the next sentence make a veiled suggestion that these are comparable with those who would exploit medical discoveries for private gain. Your remarks are pointless unless they are interpreted to mean that industrial scientists take a different and less worthy attitude towards their work than their academic colleagues.

It is as ignorantly foolish to suggest that industrial scientists are engaged in manufacturing dividends as to suggest that the medical profession is battening on the miseries of mankind. It is true that in the present economic organisation of society, if there were no dividends there would be no industrial scientists, just as if there were no disease there would be no doctors. But to pretend that the ultimate results or necessary conditions of work are among the prime motives which determine the undertaking of it is a psychological fallacy that no intelligent person should commit. Most industrial scientists are not communists and may therefore hold that the earning of commercial profit is not inconsistent with service to the community. They may even hold reasonably that their work is likely to reduce rather than increase the divergence of interest between its sections. Nor is knowledge necessarily uninteresting because it is commercially valuable. It is as possible for the industrial worker to be inspired by a real love of his work for its own sake, and indeed as necessary to his success, as an elementary lecturer in a university or a panel doctor.

Writing for and on behalf of the G.E.C. Branch of the N.U.S.W., I am indeed prepared to maintain that, since the industrial scientist is usually a member of a team and free from temptation to an exaggerated individualism, his motives are usually purer and less self-regarding than those of the academic scientist. Doubtless our profession, like any other, including that of medicine, has its black sheep. But to pretend that the association of science with commerce must necessarily degrade the former rather than elevate the latter, is a despairing pessimism which is utterly unjustified by the facts.—I am, Sir, yours faithfully,

BERNARD P. DUDDING, A.R.C.Sc.,
F.Inst.P., M.B.E.,
Hon. Secretary of the Branch.

Research Laboratories of the General Electric Co., Ltd.,
Wembley, May 18th, 1927.

*** A medical man may not limit in any way the application of a fact which may prove useful to other medical men. The industrial scientist is under no such obligation and is entitled to demand, from employers or the community, a reward commensurate with the importance of his work. The National Union setting out to improve the status of the scientific worker must be prepared to support the claim of an inventor for adequate reward from his employer. In a conflict of this kind the medical man could not be engaged; he strives on the understanding that there will be no special payment for success, and that no information will be held up by him in the absence of direct returns. The university teacher or research worker adopts the same convention, because his investigations are undertaken at the expense of a body which has been endowed with the sole object of advancing knowledge. But a nation which honours its scientific discoverers honours itself. —ED. L.

GENERAL MEDICAL COUNCIL.

THE PRESIDENT'S ADDRESS.

THE summer session of the General Medical Council was opened on May 24th, Sir DONALD MACALISTER presiding. After noting with regret the death of Sir Isambard Owen, the President made reference to the retirement of Sir Nestor Tirard and Sir E. Coey Bigger, the Crown members for England and Ireland respectively, whose terms of office had expired. He recorded the valuable assistance rendered to the Council by the former for 32 years in connexion with the Pharmacopœia, as Secretary, Reporter, and Medical Editor, and as representative of the Council on national and international committees. To Dr. H. H. Dale, the new Crown member in Sir Nestor Tirard's place, the President extended a cordial welcome, alluding to his great eminence in the application of pharmacological and biochemical science to medicine, and to his administrative experience in many fields, as secretary of the Royal Society, and head of the department of biochemistry and pharmacology in the Medical Research Institute. Sir E. Coey Bigger's retirement, the President pointed out, was a consequence of the establishment of the Irish Free State, in which he is now a senator and chairman of the Public Health Council. Colonel Thomas Sinclair, M.P., a senator of Northern Ireland, who takes Sir E. Coey Bigger's seat as a Crown member, is already the representative on the Council of Queen's University, Belfast, so that for the time being the seat for that University is vacant. The President further reported that Sir Humphry Rolleston, formerly representative of the Royal College of Physicians of London, had become the representative of the University of Cambridge in place of Dr. W. L. H. Duckworth, while the College had sent to the Council a worthy successor in the person of Dr. Farquhar Buzzard, whose football record he did not forget to mention while valuing him as a neurologist.

Ireland.

The President continued: "I mentioned last November that the Medical Act, 1926, of the Irish Free State would expire in February, 1927, unless fresh legislation was carried through. A Medical Act, 1927, was accordingly passed in that month to enable the existing arrangements to be continued until June 21st, 1927. In the meantime, conferences have taken place between the Governments of Great Britain and Northern Ireland and the Free State, at which I was courteously invited to be present. These have happily resulted in an agreement which has been signed on behalf of the three Governments, has been ratified by the Free State legislature, and now awaits parliamentary ratification in this country. It provides that the Medical Acts hitherto in force in Great Britain and Ireland shall continue to apply to the Free State, as concerns the functions, constitution, powers, authorities, and jurisdiction of the General Medical Council and its branch councils. It provides that the direct representative for Ireland shall continue to be elected by the registered practitioners resident in any part of Ireland, and that the Crown member for Ireland shall be appointed by His Majesty in Council on the recommendation of the Governor of Northern Ireland. And it ensures that practitioners registered in the Medical Register shall be entitled to be registered and to practise in the Free State. By an Act of the Oireachtas a Free State Medical Council has been established to maintain a local medical register distinct from the General Register, and to exercise in regard to it a jurisdiction distinct from that of the General Council. But the jurisdiction of the General Council in Southern Ireland will not be displaced or diminished for any purpose of admission to or removal from the General Register, or of maintaining the standard of professional education and examination in reference to registrable qualifications granted in Ireland. The provisions of the agreement appear to me, after careful and indeed anxious consideration,

to afford a satisfactory solution of the professional problems created by the establishment of the new Governments in Ireland. It is equitable as between autonomous Governments. It is practicable from an administrative point of view. Above all, it necessitates no change in the relations that have so long subsisted between the General Council, its Irish Branch Council, and the licensing bodies and medical practitioners of Ireland."

India.

After briefly recording that the Legislature of the Province of Quebec had abrogated the 48th Section of its Medical Law, by which act practitioners registered in this country would henceforth be denied similar privileges in the Province, the President went on to refer to the visit paid to India during the winter months by Sir Norman Walker and Colonel Needham, on the invitation of the Secretary of State, with the concurrence of the Government of India and of the provincial authorities, which was successfully completed in March last. "The visit," he said, "was regarded as of deep importance for the future of Indian medicine, and the Council's acceptance of the invitation addressed to its representatives had been rightly interpreted as attesting its sincere interest in India and its genuine wish to contribute to her progress in professional education. The Council owes a special debt of gratitude to its envoys for the way in which they have carried through their delicate and difficult mission, and for the happy impression of the Council's purpose and desire they have conveyed to the Indian authorities. They have now reported to the Executive Committee on those parts of their comprehensive survey that concern the immediate question before the Committee—namely, the continuance for a further period of the recognition granted to certain Indian medical degrees. A report of a satisfactory nature has been received regarding the efficiency of the Medical College at Singapore; and also reports dealing with Calcutta, and with the new universities of Rangoon, Patna, and Andhra, which call for detailed consideration. To these reports, and to certain larger questions of primary importance on which much has still to be reported, the Committee proposes to devote its July session. In particular it is imperative to discuss what steps can be contrived to maintain in India, for degrees that may be recognised for extra-Indian purposes, the standards of education and examination that are necessary to guarantee their sufficiency for registration and practice in this country. It is clear that recognition, renewed from year to year under conditions that cannot be fully complied with, does not afford a solution of the problem. The whole subject must be placed on a more satisfactory basis. The condition of periodic visitation and inspection through the direct agency of the Council is no longer practicable. The number of universities and medical colleges has greatly increased. They are scattered over a vast area from Bombay to Rangoon. And in future the high personal qualifications and ample experience of our present visitors may not be at our disposal. Thus it appears highly expedient that steps toward a new method should now be taken. These steps must originate in India, and we learn that Indian proposals, bearing on the subject of central direction, have already been under consideration by the Government and the Legislature. Whatever method is adopted, it seems necessary for efficiency that it should be carried out as a function of Government, or by some single authority in India with which the Council could communicate directly, and from which it could obtain from time to time the information it requires to enable it to fulfil its duties under Part II of the Medical Act, 1886. In view of the commissions that will soon be set up to consider (inter alia) improvements in the machinery of Indian administration, it may be opportune for the Council to call the attention of the Secretary of State to the lacuna in medical organisation I have indicated. In order to give an opportunity for the initiation of improved arrangements in this regard, the Executive Committee have at this session resolved to renew for one year more the recognition hitherto accorded to the medical degrees of Bombay, Madras, Lahore, and Lucknow."

Sir Donald MacAlister concluded by calling the attention of the Council, at the request of the Ministry of Health, to the fact that the Births and Deaths Registration Act, 1926, comes into operation on July 1st, and provides new forms enabling practitioners to furnish the precise information that is essential to the compilation of accurate medical statistics. The President took the opportunity of warning medical practitioners once again of the high importance which the Council attached to accuracy in certification, as shown by the Warning Notice.

A vote of thanks to the President was proposed by Sir Jenner Verrall and seconded by Sir Norman Walker, and the new members of the Council were introduced.

The Council acceded to the request of Mr. S. Cosgrave to have his name restored to the Dentists' Register, and later proceeded to the hearing of penal cases.

THE LISTER INSTITUTE.

ANNUAL REPORT FOR 1926–27.

IN the annual report of the Lister Institute, presented at a general meeting on May 18th, reference is made to its incorporation as the British Institute of Preventive Medicine in 1891. Lord Lister took a leading part in its establishment, was the first chairman of council, and later president, and never ceased to take an active interest in its development. These facts were recalled in the address presented on the occasion of the Lister centenary last month by Sir James K. Fowler, who represented the Institute at the ceremony.

The report for the past year chronicles but few changes in the governing body, council, or staff. Dr. Andrew Balfour takes the place of the late Sir William Leishman on the council. The resignation of Dr. E. Atkin from the position of assistant bacteriologist is recorded, on his appointment as pathologist to the Brompton Hospital. Dr. J. A. Arkwright, F.R.S., has resigned his position as a salaried member of the staff of the bacteriological department, but will continue to work in the department, where Dr. H. B. Maitland has been appointed as an assistant.

The continued coöperation between the Institute and various other bodies is noted with appreciation. The financial support given by the Medical Research Council, the Department for Scientific and Industrial Research, and the British Empire Cancer Campaign to skilled investigators in the different departments has greatly increased the scientific activities of the Institute. A summary is given of the research work accomplished and in progress during the year. Altogether nearly 50 papers have been published from the five departments of the Institute, whose activities are outlined below.

Department of Bacteriology.

In continuation of his work on the relation of vaccinia virus to the reticulo-endothelial system Prof. J. C. G. Ledingham has published a new series of experiments, the results of which show that the dermal reaction to the virus is annulled wholly or partially if Indian ink is simultaneously injected into the cutis with the virus or if the virus is superposed on sites previously infiltrated with Indian ink.

It would appear that the absence of naked-eye response to the virus under these conditions is to be correlated with the increased local defence following the stimulation of the reticulo-endothelial system by the Indian ink. The experimental results support the view previously advanced that the virus of vaccinia (or of variola) attacks primarily the reticulo-endothelial elements wherever situated and not epiblastic or epidermal elements as has been alleged. It may be noted also that vaccinia failed to elicit response in the cutis of the rabbit which had previously been the site

of an acute inflammatory process caused by injection of erysipelas streptococci. It is of interest in this connexion that failure of vaccinial response has been recently reported on rabbit skin which has been exposed to X ray and ultra-violet radiation.

Dr. Emerson Megrail (Western Reserve University, Cleveland, Ohio) has commenced a series of experiments to test the filterability of avian molluscum through porcelain and kieselguhr filters and collodion membranes.

Dr. Arkwright has continued his study of variation of the virulence and antigenic structure of bacteria. Latterly his observations have been more particularly concerned with *B. typhosus* and *B. paratyphosus* A and their antigenic constituents.

He has studied the properties of the two main kinds of antigen in the coli-typhoid group of bacteria—namely, the heat-labile and the heat-stable at 100° C., concluding that virulence and value as a vaccine are both related to the content of the heat-stable antigen. That this antigen is the constituent which gives efficacy to a vaccine was supported by the finding that the vaccines after heating at 100° C. had, as a rule, unimpaired prophylactic value. The results with *B. typhosus* vaccine were in the same direction but less distinct. These observations will be extended.

Dr. Dorothy B. Steabben has begun an experimental study of the antibodies corresponding to the heat-stable antigen in the typhoid-paratyphoid group. With Dr. Arkwright's recent work on *B. pseudotuberculosis rodentium* our readers are familiar (THE LANCET, Jan. 1st, 1927, p. 13). The motility of cultures of this bacillus when grown at room temperature and their non-motility when incubated at 37° C. serves to distinguish the bacillus from *B. pestis*. Dr. Balteanu (Rockefeller Foundation Fellow) has completed his study of *V. choleræ* and established the existence of variants with characteristic antigenic differences corresponding to the "H" and "O" antigens in the coli-typhoid group. These two antigens have been found to be present regularly in the cultures of the normal form, contrary to the opinion of most previous workers.

The action of cyanides on bacteria has been studied by Dr. F. M. Burnet (Beit Memorial Research Fellow), who has also been engaged on a study of types of bacteriophage active against *B. enteritidis* (Gaertner) with a view to their use in the treatment of infections in animals by this organism. Very characteristic differences between the action of various types of phages on bacteria grown from smooth and rough forms of colony have been found.

Dr. G. H. Eagles (Beit Memorial Research Fellow) has extended his work on hæmolytic streptococci from scarlatina, erysipelas, and puerperal fever.

Using commercial scarlet fever antitoxin he has found by testing in the human volunteer that all toxic filtrates, regardless of source, are neutralised. Antitoxic sera produced in rabbits by strains from each source tend to show some specificity in their power of neutralisation which would probably disappear from the serum in the later stages of immunisation. Immune horse serum produced by inoculation with toxin-producing strains of erysipelas show a considerable degree of neutralising value for streptococcus filtrates, including those from scarlet fever strains. The possibilities of using intracutaneous tests in goats to avoid the use of human volunteers has been investigated. This has not proved a satisfactory method owing to the high susceptibility of these animals to horse serum. An attempt is, therefore, being made to produce an antitoxic scarlatinal goat serum. When this is ready it is hoped to come to a definite conclusion regarding the goat as a test animal.

Dr. H. L. Schütze has commenced investigations of the pasteurella group of bacteria and of the oxygen requirements of *B. pestis*, and has concluded his joint work with Dr. S. S. Zilva on the effect of diet upon the course of tuberculosis in animals.

Guinea-pigs living on a diet restricted in quantity were found to be considerably less resistant to the progress of a tuberculous infection than normally fed controls. Experiments on rats produced no evidence of a beneficial effect of sodium chaulmoograte as shown by the course of the development of tuberculous tumours in these animals. On the other hand, there was some evidence for assuming that a large excess of cod-liver oil, as well as irradiation with ultra-violet light, did inhibit the formation of such tuberculous tumours. The leucocytosis often observed under these two forms of treatment does not seem to be the only agent in this inhibition, if it is concerned with it at all.

Mr. Bruce White, under a grant from the Medical Research Council, has undertaken serological studies of the salmonella and dysentery groups of bacilli, and is working on the classification of intestinal bacilli along new lines.

Dr. D. Kalic (Rockefeller Foundation Fellow) has investigated the typing of dysentery bacilli.

Major J. H. Horne, I.M.S., has been investigating the distribution and method of spread of furunculosis in trout, on behalf of the Kennet Valley Fisheries Association.

Department of Biochemistry.

The reaction which occurs between sugar and phosphate in the course of alcoholic fermentation has been investigated quantitatively by Prof. Harden and Lord Henley, with special reference to the quantities of the mono- and di-phosphoric esters produced. The work commenced last year by Miss Edna C. Smith on the conversion of starch into cane-sugar, when potatoes are stored at 0° C., has been continued. Another aspect of the same general problem is being attacked by Miss M. J. Macfarlane, who has commenced an investigation on the function of phosphates in bacterial fermentations, to ascertain whether the breakdown of the sugars by these organisms is effected in a similar way to that produced by yeast.

The chemical constitution of hexosemonophosphate and hexosediphosphate has been studied by Mr. W. T. J. Morgan (Grocers' Company Research student). He has also, in collaboration with Mr. H. P. Marks at the National Institute for Medical Research, investigated the effect of these substances on rabbits and mice suffering from hypoglycæmia as a result of the administration of insulin. No alleviation following administration has been observed.

The phosphoric esters which occur in the blood and other animal tissues and the enzymes by which they are synthesised and hydrolysed in the body have been the subject of Dr. R. Robison's work. In collaboration with Dr. M. Martland, he has made an extended study of the properties of the bone enzyme (phosphoric-esterase) and the results are now being prepared for publication. The conditions of calcification in vitro have also engaged his attention. Continuing his chemical investigations of the antiscorbutic factor, Dr. Zilva has succeeded in improving the methods for fractionation of this vitamin.

Antiscorbutic tests have been carried out on the duplicate sample of stored lemon juice taken out by the *William Scoresby* to the Arctic circle last year. No appreciable loss in activity could be detected after 12 months' storage. Systematically collected whale liver received from Dr. Kemp of the *Discovery* expedition has been tested by Dr. Zilva for its content of vitamins A and D. In collaboration with Miss Soames and Captain J. Golding of the National Institute for Research in Dairying, Dr. Zilva has found that by adding cod-liver oil to the diet of the cow, the butter acquires enhanced vitamin D and vitamin A activity, whilst addition of green fodder leads only to improvement in the vitamin A content. This investigation is being extended further and clinical experiments are being conducted by Dr. Helen Mackay.

Dr. Smedley MacLean and Mr. C. G. Daubney have studied the synthesis of fats, sterols, and lipins by vegetable organisms.

Department of Experimental Pathology.

Prof. C. J. Martin and Dr. Elizabeth Lepper have continued to study the aberrations of the colorimetric method of determining pH caused by the presence of various substances. Their results explain some of the contradictory results obtained by previous observers when using neutral red to determine the reaction of sera. Dr. E. Lepper and Dr. M. Martland have made observations on the alterations produced in the hydrogen-ion concentration of the blood during forced breathing, which at the rate of 40 per minute increases the pH of the blood 0·2; short but violent exercise lowers the pH 0·1 or more. These and other experiments on the variation of the alkalinity

of the blood under physiological and pathological conditions are in progress.

Dr. J. O. W. Barratt's observations on the anticoagulant effect of hirudin have been completed. The experimental results obtained indicate that the interaction of hirudin and thrombin corresponds to that of weak acid upon weak base and show that the hypothesis of an absorption of thrombin by hirudin is untenable. The experiments made also show that both hirudin and thrombin are present in true solution in the concentrations employed.

Prof. V. Korenchevsky, in coöperation with Miss M. Schultess-Young, is attempting to isolate the specific sexual hormones.

He has also studied the influence of the removal of the thyroid, parathyroid, and sexual glands and of thyroid feeding on the regulation of the body temperature. After thyroidectomy, cooling causes a much more pronounced fall, and warming, a much less increase of the body temperature than is observed in normal animals. Prof. Korenchevsky concludes from his experiments that the thyroid gland plays an important part in the regulation of the body temperature, and therefore its condition has always to be taken into account in considering the resistance of different individuals to cold or heat and also in the diseases accompanied by fever.

Miss E. M. Hume and Miss Henderson Smith have been engaged in a lengthy research with the object of improving the technique of estimating vitamins A and D, and new methods have been devised.

Since the introduction of a new technique for estimating vitamin A it has become necessary to revise many old determinations. Yeast fat is now found to be deficient in vitamin A, and the vitamin D value, both before and after irradiation, of different samples of yeast fat, which has a high content of ergosterol is now being studied. The previous work of Dr. Harriette Chick and Miss Margaret H. Roscoe showed that the green leaves of spinach (*Spinacia oleracea*) while a rich source of vitamin A, contained vitamin D in small amount only, even when grown in spring and summer under maximal natural illumination. Nevertheless, as Hess first showed, similar leaves after short exposure to ultra-violet irradiation from a mercury arc lamp acquired high antirachitic value. The strikingly different effect of sunlight and the radiations from a mercury arc might be associated with the much greater intensity of the smaller wave-lengths in the latter or the disappearance of vitamin D from green leaves almost as quickly as it is formed. To test the latter hypothesis Miss Roscoe has grown spinach and gathered it in sunshine and fed it immediately to the experimental animals. Under these circumstances, however, spinach was found to possess only a just detectable antirachitic value. It would appear from the recent discoveries of Rosenheim and Webster, and Hess and Windaus that the first explanation is the correct one. They found that vitamin D is activated ergosterol, which substance has a specific absorption for radiant energy of a wave-length absent from sunlight but present in the radiations from the mercury arc.

Marine green organisms such as *Nitzschia* can no longer be regarded as the ultimate source from which the cod and other fish obtain the antirachitic vitamin stored in their liver oils; Miss Leigh-Clare has been unable to detect the presence of vitamin D in *Nitzschia*, whether the diatom was grown in the laboratory behind window-glass or on the roof of the Institute, protected with a covering of windolite, a material fairly transparent to ultra-violet light of the refrangibility occurring in sunlight. Miss Leigh-Clare has also examined the stomach oil of the mutton bird or Australasian petrel (*Œstrelata lessonii*) for its content of vitamin D and has found it present in a concentration equal to about one-fifth that found in a good cod-liver oil. The interest of this investigation lies in the fact that the mutton bird is believed to consume the same food as the Australasian red cod—i.e., a crustacean known as "whale feed."

A comparison of biological and colorimetric methods of titrating vitamin A was undertaken at the request of the League of Nations Conference on Standardisation of Biological Values at Geneva in 1925.

The results of biological titration by the different laboratories of material provided indicated a large experimental error, but nevertheless showed the vitamin A value of various samples of Norwegian cod-liver oil to differ from one another by as much as one hundred fold. The results of the colorimetric titration of any one oil by the method of Drummond and Rosenheim agreed with the series of values obtained by the biological method in the different laboratories, as nearly as the latter agreed among themselves. At the Lister Institute the work was entrusted to Miss Soames, assisted by Miss Leigh-Clare. These workers titrated the antirachitic value of the oils in addition to that of vitamin A with the interesting result that among the whole series of oils the former was found to be much more uniform than the latter. This is possibly attributable to the fact that the oils were no longer fresh and vitamin A is much more unstable than vitamin D.

Dr. Chick and Miss Roscoe have confirmed the recent work of Goldberger and his colleagues, which indicated that "water-soluble B" must be regarded as a combination of the antineuritic vitamin with a second factor, probably identical with the principle in diet which prevents pellagra. The work is being continued by a study of the distribution of these two principles (*a*) "antineuritic" and (*b*) "anti-pellagra" and an attempt to separate them when present together in various rich sources of vitamin B.

A method has been evolved which permits of accurate observations on the nitrogenous metabolism of small animals—e.g., rats—and Dr. Chick and Miss Roscoe are making re-determinations of the relative values of some of the more commonly occurring proteins for maintaining nitrogenous equilibrium in the rat. It is proposed to examine a series of proteins in their natural as well as purified state and to extend the investigation to naturally occurring nitrogenous substances of a non-protein nature.

Dr. Margaret A. Boas (Beit Memorial Research Fellow) has continued her study of the influence of dehydration on the nutritive properties of egg-white.

With regard to the biological action of light, Hess showed that rickets could be prevented or cured by feeding with the cholesterol esters in the skin (lanolin) after irradiation with ultra-violet light, and suggested that a possible source of vitamin D was the absorption of lanolin which had been activated by sunlight. Miss Hume, Dr. Lucas, and Miss Henderson Smith have experimentally tested this suggestion.

Young rats and rabbits were placed upon a diet on which they would inevitably suffer from rickets. 0·2 g. of irradiated cholesterol in hardened cotton-seed oil was applied daily to an area of depilated skin equal to about 1 square inch, every precaution being taken to prevent the animals ingesting any of the material. The treated animals did not develop rickets, the controls did. Whether, owing to the opacity of the skin to ultra-violet rays, vitamin D is able to be formed only on its surface or whether sufficient of the activating rays penetrate the epidermis to activate any ergosterol which may circulate in the superficial capillaries is being investigated.

Dr. Lucas has also been determining the transparency of skin from different parts of the body to ultra-violet light of wave-lengths varying from those of visible light to the shortest that occur in sunlight.

Miss Hume, Dr. Lucas, and Miss Henderson Smith have also made some interesting observations on the beneficial action of a short daily exposure to ultra-violet light on the well-being of marmosets. These animals fare badly in this country, refuse a diet suited to our climate, and rarely breed here. The marmosets under investigation have been kept in a stuffy room into which no sunlight penetrates that has not passed through plate-glass. They have been fed chiefly upon sweetened milk and bananas and exposed for ten minutes daily to the rays from a mercury arc lamp. They have enjoyed perfect health and are extraordinarily active and have bred twice in the year. The offspring were well-developed, but each time one of the twins was born dead, the other flourished.

Dr. T. Lumsden, with the assistance of Miss A. C. Kohn-Speyer, has continued his work on implanted homologous malignant tumours in animals published in THE LANCET, 1926, ii., 112, and Jan. 15th, 1927, p. 116. Experiments with heterologous tumours are in progress.

Department of Protozoology.

Dr. Muriel Robertson has been occupied with a morphological study of the two organisms *T. raiae* and *Bodo caudatus*, with special reference to their method of division and to the nature of the parabasal body. Dr. H. M. Woodcock (Jenner Memorial Student) is continuing his work on encephalitis of rabbits.

It is characterised histologically by small-celled perivascular infiltration and the occurrence of focal lesions, constituted in part by large epithelioid cells. Clumps of the small bodies, thought by some to be parasites, and called "*Encephalitozoa*" are found either associated with these zones or separate from them. The disease occurs "spontaneously," at times in the form of an epizootic, both in America and on the continent, but very seldom in this country. Kling, of Stockholm, considers that he has produced the condition by inoculating rabbits with material from cases of human encephalitis. Dr. Woodcock, working with material kindly sent by Prof. Kling, has succeeded in obtaining infection in 20 per cent. of the animals so far inoculated. In these cases the "*Encephalitozoon*," bodies found are identical with those previously found in a stock rabbit; when these bodies occur, well-marked lesions are also present, but characteristic lesions may occur without the bodies being found. Both Kling and Woodcock are of opinion that these elements are not microsporidian parasites and regard them as cell reaction products.

Dr. Woodcock is also investigating the pathology of sarcocystic disease of the mouse.

Department for the Study and Preparation of Antitoxic Sera.

Work on the standardisation of antidysentery serum has been carried on throughout the past year. The relation of "roughness" and "smoothness" of streptococcus cultures to their virulence and hæmolytic power has also been studied in this department.

Other investigations include those into the endotoxin of the plague bacillus and the production of diphtheria toxin. An attempt has been made to combat pneumococcal infection amongst guinea-pigs by giving the animals a more generous ration of green food.

Until Christmas the health of the stock remained exceptionally good, but during the early part of the present year a number of litters were born dead and some of the young died soon after birth. The antenatal mortality and the deaths among the very young were found to be due to the pneumococcus. Whereas formerly the mothers of the infected young often died about a week after parturition with an acute pneumococcal infection it is now exceptional for them to die in this period; they are in fact healthy carriers of the disease, which they transmit to their young. It is suggested that some essential factor is missing in the nutrition of the fœtus by the mother's blood, a constituent which is gradually exhausted during the first half of the winter, and that the absence of this substance is less harmful to the parent than to the young. It is natural to think that the missing element is vitamin D and it is proposed, during next winter, to artificially illuminate some of the breeding stock, with a suitable control, in order to test the validity of this hypothesis.

The accidental production of pneumococcal endocarditis in a horse that was being actively immunised against a type 1 strain of pneumococcus led to the recovery from the blood of a strain of pneumococcus which proved to be non-virulent for mice. Experimental work with this strain is in progress in the attempt to throw light on the pathogeny of acute and chronic endocarditis in man.

In the department for the study and preparation of antivariolous vaccine Dr. A. B. Green has made further attempts to cultivate the vaccine virus artificially, and has continued his work on the raising of the virulence of vaccine. The recent progress of foot-and-mouth disease research was recorded in the second progress report of the Committee published early in 1927 (THE LANCET, March 5th, 1927, p. 499).

General and Financial.

A request from the Empire Marketing Board to the Medical Research Council for advice as to the best means of promoting an investigation into methods of preserving Empire fruits, vegetables, and dairy products in order to preserve their vitamins was, in November last, referred to the Accessory Food Factors' Committee, appointed jointly by the Institute and the Medical Research Council. The Committee suggested that such an investigation be carried out at the Institute. The Committee's recommendations were approved by the Medical Research Council and the Empire Marketing Board, and the Governing Body of the Institute. The investigation will occupy five years and is being carried out in the Biochemical Department under the general supervision of Prof. Harden. Dr. S. S. Zilva will be in charge of the investigation and the cost of the inquiry will be borne by the Empire Marketing Board. The accounts and balance sheet for the year ended Dec. 31st, 1926, show balances to the credit of the pension fund of £23,044, the sinking fund of £15,258, and the capital fund of £506,792, the latter figure including the credit balance of £8481 from the year's working. Receipts from the sales of the Institute's products and investigation fees show a net decrease of £4131 compared with the previous year—viz., antivariolous vaccine decrease £2156; antitoxins and sera decrease £1622, bacterial vaccines decrease £1160, investigation and diagnosis fees increase £808. The total expenditure for the year was £38,086, against £36,502 in 1925. Rent, rates, taxes, and insurance, repairs and renewals (including the installation of electricity at the serum department), and library expenses show an increase, and gas, water, and fuel, electric light and power, serum and calf laboratories expenses and animals a decrease compared with last year.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs.: O. J. M. Kerrigan to *Impregnable*; J. J. Carroll to *Tamar*, addl., and for Hong-Kong Dockyard.

ROYAL ARMY MEDICAL CORPS.

Capts. to be Majs.: C. H. G. Penny (Prov.), and H. E. P. Yorke.

Lt. (on prob.) H. McVicker is confirmed in his rank.

W. F. Cooper to be Lt. (on prob.).

J. D. Dillon to be Temp. Lt.

RESERVE OF OFFICERS.

Col. H. G. Martin, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

SUPPLEMENTARY RESERVE OF OFFICERS.

Lt. N. M. Maclennan resigns his commn.

TERRITORIAL ARMY.

Capt. R. R. Evans, R.A.M.C., to be Divl. Adjt., 55th (W. Lan.) Div., vice Capt. B. L. Davis, vacated.

Lt. L. C. F. Chevens resigns his commn.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. A. W. Moore from the Active List, to be Lt.-Col.

Maj. J. Wallace, from the Active List, to be Maj.

ROYAL AIR FORCE.

Squad-Leader R. S. Topham is placed on the retired list at his own request.

Flight Lt. H. H. R. Bayley relinquishes his temp. comm. on completion of service.

INDIAN MEDICAL SERVICE.

Capts. Rustam Merwan Kharegat and J. C. Pyper to be Majs.

Lt. J. C. Drummond (prov.) to be Capt.

The Admiralty invites applications for short service commissions as surgeon-lieutenant and also as dental officers. Particulars may be found in our advertisement columns.

GLASGOW DENTAL HOSPITAL.—The Governors of the Incorporated Dental Hospital, Glasgow, have obtained a site for a new building in Renfrew-street. The intention is to erect and equip "the finest dental institution in the kingdom," and an appeal for £90,000 is about to be made.

PROPOSED EXTENSIONS OF KING'S COLLEGE HOSPITAL.—At the annual festival dinner last week, at which the Duke of Connaught presided, it was stated that the plans for extension include the building of a block for 60 paying patients. The 16 additional casualty beds, towards which King Edward's Fund makes a special grant, expiring next year, are always full, and cost a minimum of £3500 a year. The casualty cases last year numbered 16,000.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

TRADE DISPUTES BILL: LABOUR CRITICISM OF MEDICAL PROFESSION.

ON Monday, May 23rd, the House considered in Committee the Trade Disputes and Trade Unions Bill.

On Clause 3 (which deals with the prevention of intimidation),

Sir H. SLESSER said that there had been cases in which the British Medical Association had told doctors that if they took salaries lower than a certain rate at infirmaries no other doctor would be allowed to consult with them. There was the case of Pratt *v.* British Medical Association in which the British Medical Association, for telling doctors that they might not consult with Dr. Pratt at Coventry, were fined £1000 or £2000 in damages. Case after case of professional coercion had occurred, and if the Government were really so apprehensive of intimidation and coercion of all kinds, so sensitive about the mind of man being coerced by any external power, if they once departed from what he (Sir H. Slesser) thought was the salutary principle of limiting the application of the Statute to preventing violence and threats of violence, he asked why should they stop at the working man? There were thousands of private employers who would welcome a provision which would protect them against the tyranny of employers' combines.

Mr. MACQUISTEN said he did not understand the morale of picketing at all. If he personally were picketed it would take a good big crowd of his fellow lawyers to carry it out with any success. (Hon. Members: "What about doctors?") It was all very well to talk about the doctors. He was quite in agreement with hon. Members that doctors had far too much power. He thought that the British Medical Association was the most tyrannical trade-union the country possessed, and he would be delighted to see some clause introduced which would prevent these trade rings from victimising the whole community. They would have to be dealt with some time or other.

Mr. LAWSON said that he thought this clause was not only an injustice to the great mass of the workers; it was not only an example of class vindictiveness, but it was the most perfect piece of hypocrisy that had even been brought before the House. What they were doing was to punish workmen for doing certain things which everyone in the House knew were done by every class and profession in the country. Dr. Vernon Davies, who was a member of the medical profession, had asked him (Mr. Lawson) what he thought of the recent speech of Mr. Spencer. He had replied: "What would happen to him if he had been a doctor instead of a miner, and if the British Medical Association instead of the Miners' Federation had been dealing with him?" He would have been driven out of the medical profession. There was a celebrated case which commanded the interest of the whole of the press and the whole British public and in spite of the fact that it was universally agreed that Dr. Axham was intimidated, the British Medical Association not only carried on its work in regard to him, but did it with legal authority. In the mining areas they had not always the kind of medical service which they considered good enough, and they had brought in doctors. They had given them infinitely better salaries than they were getting elsewhere; they had given them better instruments and medicine, but in spite of that he did not know a single case where the British Medical Association had not stepped in and used threats to prevent those doctors practising under those conditions.

Dr. VERNON DAVIES: Do I understand the hon. Member to say that the British Medical Association have definitely threatened these men, or that they have simply offered advice to them not to undertake the work?

Mr. LAWSON replied that these professional men had been "advised." They had been brought down to meet representatives of the British Medical Association in the country. They had put their case and defended themselves, and there was not a single case where they had not been driven out and intimidated.

Dr. VERNON DAVIES said that Mr. Lawson seemed to be suffering under some slight misapprehension in his remarks concerning the British Medical Association. The British Medical Association was not a trade-union. It was a voluntary combination of a certain number of medical men, but there was no compulsion upon any man to join, and any man who did join was not compelled to obey their rules and regulations. He had been a member of the Association ever since he went into practice, and as often as not he had been opposed to their policy. In the House he had voted against their policy on Committee, and yet he had not been penalised in any shape or form, threatened, or interfered with. He had given his point of view and said that as he believed they were wrong he should vote against them, and he had done so and had not suffered. Cases were mentioned where the British Medical Association had interfered with certain appointments. All that the British Medical Association did was this. They said: "We are an association of medical men out to protect the interests of the medical men and the public. We think a certain job is worth a certain amount of money. This particular society or company is advertising a job at a rate of remuneration which we think is too low. If you accept it you will be very foolish, because if you stick out you can get more." Suppose a man took it, nothing was done to him. All that the British Medical Association did was to say: "You are satisfied with a lower rate, we cannot interfere, we cannot penalise you, and we cannot turn you out of the Association, nor can we advise anybody to have nothing to do with you."

Mr. LAWSON: They drive him out.

Dr. VERNON DAVIES: Not at all; that is where hon. Members make a mistake. All that the British Medical Association do is to say: "You are fools if you are prepared to work for a lesser wage," but they cannot and do not penalise that man in any shape or form.

Colonel WATTS-MORGAN asked Dr. Davies to take it from him that he could give him a case of four doctors who had accepted appointments and had been boycotted by all the medical men in the district, who had refused their assistance in operations and in cases in hospitals. If that was not intimidation, heaven knew what intimidation was!

Dr. DAVIES said that he was referring to the British Medical Association. It might be that the local doctors considered that a man who accepted this appointment was doing what would bring down the rates of remuneration, and they might say: "We do not approve and, socially, we will not meet you." But, professionally, they were bound to meet him. If any doctor refused to assist his professional brethren who might have any consultation he would not secure the backing of the British Medical Association, or of any medical man.

Colonel WATTS-MORGAN: I am quite prepared to give the hon. Member the names so that he can prove my statement.

HOUSE OF COMMONS.

WEDNESDAY, MAY 18TH.

Polluted Milk.

Mr. BUXTON asked the Minister of Health (1) whether he was aware that medical officers of health in certain areas had given public advice against the consumption of liquid milk by infants, on the grounds of impurity, in their administrative area; and, in view of this fact, what further steps he proposed to promote a clean supply; and (2) whether, in view of the circular to the local authorities discouraging them from applying too zealously the Milk and Dairies Order, 1926, what alternative steps he was taking to safeguard the public from the supply of polluted milk.—Sir KINGSLEY WOOD replied: My right hon friend's attention has not been drawn to any recent instance of public advice being given by medical officers of health against the consumption of liquid milk by infants. The right hon. gentleman has not accurately presented the purport of the circular to local authorities as to the Milk and Dairies Order. The circular emphasised the importance of insisting on cleanliness in milk production, and, if the statutory requirements are observed and the Order is administered as suggested, my right hon. friend does not think that further measures should prove to be necessary.

Mr. BUXTON: Is the Parliamentary Secretary aware that in the House of Lords Lord Bledisloe alluded to the occurrence of medical advice of this character quite recently, and can he assure the House that the Minister of Health will resist any essential modification of the provisions of this Order?

Sir KINGSLEY WOOD: I have no knowledge of the first statement of the right hon. gentleman. As regards the second that is, of course, a purely hypothetical question which I am not in a position to answer. So far as the Order is concerned the views of my right hon. friend are represented in the circular which he circulated on Jan. 20th last.

Mr. PALING: May I ask whether the Order discouraging local authorities from carrying out these provisions was sent out as a result of protests of agriculturists on the Government side of the House?

Sir KINGSLEY WOOD: The hon. Member has no right to characterise the circular in that way. There is no reference in the circular to any such statement.

Commander WILLIAMS: Is it not a fact that the real danger is not from British milk, but from imported milk?

Mr. DAY: Has the Parliamentary Secretary seen the report of the medical officer of health for Woking, and if not, will he have that report looked at?

Sir KINGSLEY WOOD: I am not aware of that report.

Mr. A. V. ALEXANDER: As it is impossible to get clean milk for a large number of the working classes without getting dried milk, will the Minister of Health consider

whether it is not possible to get compulsory circulation of bottled and pasteurised milk?

Sir KINGSLEY WOOD: That does not arise out of this question.

Sir W. LANE-MITCHELL: May I ask if it is not the case that 90 per cent. of the milk supplied in London now is pasteurised and bottled under the regulations of the Ministry of Health, so that the London public is fully protected?

No answer was given.

Small-pox in Scotland.

Mr. HARRISON asked the Secretary of State for Scotland the total number of cases of small-pox notified in Scotland for the year ending April 2nd, 1927, or nearest convenient date, and the names of the localities affected.—Sir JOHN GILMOUR replied: For the year ended April 2nd, 1927, there were notified in Scotland 61 cases of small-pox. The only locality affected is Dundee.

Insurance Act Benefits.

Mr. HARNEY asked the Minister of Health what was the approximate total amount paid to the insured population under the National Health Insurance Act from the date of its inception till now under the following heads: sickness benefit, disablement benefit, maternity benefit, and additional treatment benefits, respectively; what was the approximate total amount of contributions received under the Act from each of the following: employed contributor, employer, and the State, respectively; and what was the number of approved societies operating under the Act of Dec. 31st, 1926.—Mr. CHAMBERLAIN replied: The particulars asked for under the National Health Insurance Act from the date of its inception under Dec. 31st, 1926, are given in round figures for England and Wales in the following statement: Total amount paid: sickness benefit, £90,000,000; disablement benefit, £31,000,000; maternity benefit, £18,000,000; additional treatment benefits, £4,500,000. The approximate total amount of contributions received under the Act from employed contributors was £143,000,000; employers, £136,000,000; the State, £94,000,000. The number of approved societies with head offices in England and Wales at Dec. 31st, 1926, was 926, including 27 societies with approximately 6440 branches.

Vaccination Bill.

Mr. GROVES presented a Bill to amend the law relating to compulsory vaccination which was read a first time.

THURSDAY, MAY 19TH.

First-aid in Street Accidents.

Dr. VERNON DAVIES asked the Secretary of State for the Home Department what measures were taken in the metropolitan police district to see that prompt and efficient first-aid was available in the case of street accidents; and if he was satisfied that these measures were sufficient, bearing in mind the probability of a steady increase in these accidents owing to the rapid development of motor transport.—Sir W. JOYNSON-HICKS replied: The main responsibility for the provision of first-aid (apart from facilities for removal to hospital) in case of street accidents must obviously rest with the police, and the importance of first-aid training is fully recognised. Under present arrangements every recruit entering the Metropolitan Police receives instruction in first-aid and ambulance drill and is required to secure a certificate of proficiency in first-aid before his appointment as a constable can be confirmed. At the present time about 90 per cent. of the force possess certificates of competency, and I am not aware of any reason for thinking that the existing arrangements are in any respect insufficient.

Dr. DAVIES: Can my right hon. friend say whether the provision of this first-aid has necessitated any increase in the force itself?

Sir W. JOYNSON-HICKS: It is quite impossible to say exactly where an increase in the force arises. There may be a few more men, but I think on the whole there has been no actual increase because of this.

Mr. HARRIS: Is this the most satisfactory way of dealing with this matter? Would it not be better to deal with it through the improved motor ambulance service supplied by the London County Council?

Sir W. JOYNSON-HICKS: I should be very glad if the London County Council would assist me.

Children and Vaccination.

Sir JOHN POWER asked the Minister of Health the number of children born in England and Wales last year, and how many of them were vaccinated.—Mr. CHAMBERLAIN replied: The number of births registered in England and Wales last year was 694,563, but I am not at present in a position to say how many of these children have been vaccinated. The corresponding figures for 1925 were: births, 710,400; successfully vaccinated, 314,325.

Cost of Small-pox Treatment.

Mr. HARRISON asked the Minister of Health the estimated cost of the treatment of the 12,922 cases of small-pox notified in England and Wales during the year ending April 2nd, 1927; and the percentage of that cost borne by the Exchequer and local authorities respectively.—Mr. CHAMBERLAIN replied: These particulars are not available, but no part of the cost of the treatment of small-pox cases falls on the Exchequer except in the case of patients arriving in this country suffering from the disease who are isolated and treated by the port sanitary authorities. In such cases 50 per cent. of the cost is borne by the Exchequer.

Cost of Public Vaccination.

Mr. HARRISON asked the Minister of Health what was the estimated cost of public vaccination for small-pox during the year ending April 2nd, 1927, including the cost of preparing the vaccine.—Mr. CHAMBERLAIN replied: The cost of public vaccination, including the cost of vaccine lymph issued from the Government Lymph Establishment, was approximately £175,000 for the financial year 1925–26, which is the last year for which particulars are at present available.

Post-vaccinal Encephalitis.

Mr. BRIANT asked the Minister of Health when the report of the committee appointed in February, 1926, to consider the question of post-vaccinal encephalitis would be issued.—Mr. CHAMBERLAIN replied: If the hon. Member refers to the committee appointed to inquire and report, amongst other things, on the practical methods which are available in the light of modern knowledge to diminish or remove any risks which may result from vaccination, the answer is that I am not yet in a position to say when the report will be issued.

Substitutes for Ethyl Alcohol.

Lieut.-Colonel HENEAGE asked the Secretary to the Treasury whether an investigation had been made into the subject of substitutes for ethyl alcohol; and, if so, whether he is in a position to state the results.—Mr. R. MCNEILL replied: Yes, Sir. My right hon. friend arranged for an investigation into this subject by the departments concerned, and as a result the following conclusions have been reached: (1) Purified methyl alcohol will remain within the scope of the spirit duty. But no duty will be payable so far as it is used for industrial purposes and the official supervision of manufacture and duty-free use will be reduced to the minimum consistent with the safety of the revenue. Moreover, provision has been made in Clause 14 (1) of the Finance Bill for the extension to methyl alcohol of an appropriate Excise allowance on the lines of that now payable on ethyl alcohol manufactured in this country and used duty-free for industrial purposes, in order to compensate for the expense involved in conforming to Excise restrictions on manufacture. (2) As at present advised, it is not proposed to bring any other substance, which may be used as a substitute for ethyl alcohol, within the scope of the spirit duty. It is, however, proposed in Clause 15 of the Finance Bill to take power to collect information as to the importation, manufacture, distribution, and use of the higher alcohols and to require manufacturers of these substances to register with the Customs and Excise Department.

MONDAY, MAY 23RD.

Small-pox at Hackney Wick.

Captain GARRO-JONES asked the Minister of Health whether it had been found possible to trace the source of infection of the case of small-pox which had occurred at Hackney Wick; whether he was satisfied that local authorities had all useful powers to safeguard the population in such cases; and on what date, in the absence of further cases, the contacts and other inhabitants of Hackney Wick would be free from danger of infection from the case mentioned.—Sir KINGSLEY WOOD replied: The source of infection of this case has not yet been traced. My right hon. friend is of opinion that the local authorities have all necessary powers to safeguard the population in such cases if adequate use is made by the public of the facilities provided for free vaccination. As regards the last part of the question, as further cases have occurred in this area, my right hon. friend is not in a position to say when the inhabitants will be free from the danger of infection.

Heart Disease in the Navy.

Dr. VERNON DAVIES asked the First Lord of the Admiralty if any youths under 21 years of age had been invalided out of the Navy during the past seven years for which statistics were available for heart disease, the result of rheumatism during their period of service; and, if so, how many.—Lieut.-Colonel HEADLAM (Parliamentary Secretary to the Admiralty) replied: The numbers of officers and men under 21 years of age invalided from the Royal Navy and

Royal Marines during the years 1921 to 1925 for organic heart disease were as follows: 1921, 111; 1922, 67; 1923, 23; 1924, 28; and 1925, 34. No figures are available for 1920 and those for 1926 are not yet available. It is not known how many of these invalidings were the result of rheumatism and to ascertain the number would involve a considerable expenditure of time and labour, which would not appear to be justified.

First-aid in Road Accidents.

Dr. VERNON DAVIES asked the Minister of Transport what steps were taken by his department for the provision of efficient first-aid on the roads of this country; and if he was satisfied, bearing in mind the increase of road accidents due to motor and other traffic, that the provision made was adequate.—Colonel W. ASHLEY replied: I have no powers to provide first-aid outfits on the roads of the country.

International Congress on Hydrophobia.

Mr. DAY asked the Minister of Health the names of our representatives who attended the International Congress on Hydrophobia which was summoned by the health section of the League of Nations held at Paris, together with the cost to Great Britain.—Mr. CHAMBERLAIN replied: The Ministry of Agriculture and Fisheries was represented by Dr. W. H. Andrews, the Medical Research Council by Captain S. R. Douglas, and the Ministry of Health by Dr. W. M. Scott. In addition, six representatives attended from British institutes overseas at which anti-rabic work is specially important. The only expenses entailed to the public funds were travelling and subsistence allowances on the ordinary scale for the three delegates from Great Britain.

Small-pox at Hendon and Golders Green.

Mr. DAY asked the Minister of Health whether he could furnish the following particulars of the small-pox cases removed to hospital from Hendon to Golders Green; the sex and age of each patient; the vaccinal condition of the fatal and non-fatal cases; whether there were any special circumstances connected with the fatal cases that contributed to the fatal result; and whether the infection was originally contracted abroad.—Mr. CHAMBERLAIN replied: Nine patients, whose homes were in the urban district of Hendon, were removed to hospital, one male and eight females. One patient was eight days old and the others were aged 8, 15, 16, 21, 23, 37, 42, and 47 years respectively. There were five fatal cases and I am informed that at the time of infection four of these were unvaccinated and one vaccinated. Of the non-fatal cases, two were unvaccinated and two vaccinated at the time of infection. The three vaccinated cases were aged 23, 42, and 47 respectively, and were all vaccinated only in infancy. As regards the last part of the question, I am not aware of any special circumstances. I am informed that the source of infection has not been traced.

TUESDAY, MAY 24TH.

Funds of the Dental Board.

Mr. HORE-BELISHA asked the Minister of Health how much the Dental Board had accumulated in cash and invested in securities; what it was proposed to do with this money; and what steps were being taken by the Board for the professional benefit of the 1921 dentists who supplied a large proportion of this money.—Sir KINGSLEY WOOD replied: As regards the first part of the question, I would refer the hon. Member to the accounts of the Board which were presented to Parliament in March. The real balance, including the invested general reserve fund, was £20,750. My right hon. friend is informed that the main items of the Board's expenditure are grants in aid of dental schools, bursaries to dental students of limited means, and research. As regards the last part of the question, the Board are not under any statutory obligation to spend their money for the benefit of any particular class, but my right hon. friend is informed that since the formation of the Board bursaries awarded to sons of "dentists 1921" have amounted to approximately £10,000 and the sum of £3,850 has been spent on lectures and demonstrations for the benefit of this class of dentists. In addition, over £10,000 has been allocated to dental health propaganda and £23,000 to research. "Dentists 1921" participate in the benefit derived from expenditure in these two directions in proportion to their numbers.

Vitamin Research.

Mr. DAY asked the Minister of Health if his attention had been drawn to a process discovered in Germany for manufacturing synthetic vitamins; and whether any research work was being undertaken by the departments or laboratories under his control to produce vitamins of this quality in Great Britain.—Mr. CHAMBERLAIN replied: The investigations to which I believe the hon. Member intends to refer are following the lines of work of fundamental importance done recently in the National Institute for Medical Research, at Hampstead, where the production of a vitamin of intense potency has been effected by the action of light upon a known chemical substance in pure form. I am glad to be able to say that this country continues to take the leading position in vitamin research which it has held throughout. I am informed that much important work upon the various vitamins, including that already mentioned, is in progress in various laboratories, and in large part with the support of public funds administered by the Medical Research Council.

Toxic Action of Silica in Water.

Mr. MORRIS asked the Minister of Health if he was aware that local authorities were proposing to adopt the process of adding silicate of soda to soft water in order to prevent the solvent action of the water on lead pipes; whether this process had been investigated by the Ministry of Health; and whether, in view of the toxic action of silica under certain conditions, he would order that the use of this process be discontinued.—Sir KINGSLEY WOOD replied: My right hon. friend is aware that this process has been adopted in a few districts, mainly on an experimental scale. The quantity of silicate of soda used is so small that the proportion in the treated water is much less than that contained in many natural waters used for domestic supplies. The results of the treatment are being carefully watched and, upon the information so far available, there appears to be no reason to apprehend any danger to health or any diminution in the wholesomeness of the water.

Civil Population and Poison Gas.

Mr. CECIL WILSON asked the Prime Minister whether any decision had been come to as to the methods to be taken for the protection of the civil population against poison gas; and, if not, when such decision might be expected.—Mr. BALDWIN replied: The problem of the protection of the civil population against gas attack is being closely studied both in its technical and its non-technical aspects. I cannot at the present time particularise the steps taken further than to say that they are directed to securing in the first place the provision of an adequate personnel suitably equipped and trained in protective measures, and secondly, the dissemination at the proper time of full information in regard to the best methods of self-protection.

Obituary.

WAREN TAY, F.R.C.S. ENG., L.S.A.,

CONSULTING SURGEON TO THE LONDON HOSPITAL.

WE regret to announce the death of Mr. Waren Tay, one of the oldest Fellows of the Royal College of Surgeons of England, which occurred on May 15th at his house in Croydon. He was in his eighty-fourth year and had lived much in retirement recently.

Waren Tay received his medical education at the London Hospital and qualified as M.R.C.S. in 1866, proceeding to the Fellowship three years later. After holding the usual resident appointments, he became assistant surgeon and ophthalmologist to the London Hospital in 1869, and was promoted to charge of beds seven years later. He was an untiring hospital officer, giving his time without stint to the "London," and being at the same time surgeon to the North-Eastern Hospital for Children, the Hospital for Diseases of the Skin, Blackfriars, and the Royal London Ophthalmic Hospital. He belonged to a simpler age when it was possible for the general surgeon to be at the same time a special authority in separate directions, some of which were actually being split into further departments during his lifetime. During 20 years he worked largely in association with one of his immediate seniors, Jonathan Hutchinson, and like him combined with general surgery the pursuit of ophthalmology and dermatology, adding the third subject of pediatrics. He wrote on all the subjects in which he specialised, although no big book came from his pen, nor was he a prominent contributor to any of the big systems of surgery or therapeutics. He translated one of the volumes of Hebra's Dermatology for the New Sydenham Society, but his writings were largely confined to hospital reports, a certain number of clinical records in the medical journals, and the proceedings of learned societies.

We are indebted to two of his friends for the following appreciation of Mr. Tay as teacher and colleague :—

"Tay was one of the hewers of wood and drawers of water in medicine. Such men accumulate the materials with which others build. He was a walking dictionary at the London in the 'nineties. No one knew more than he about skin or tumours or syphilis or eyes, and he had seen more out-patients, there and at Blackfriars and Moorfields, than any living man. His was a prodigious zeal for knowledge, without the desire, and perhaps without the power of exploiting it. Tay owed his appointment on the staff to Jonathan Hutchinson, but Hutchinson owed very much to Tay, whose industry was ever at his call. The younger surgeon was indeed overshadowed by the great clinical teacher, even it seemed at times to the weakening of his own initiative and judgment. Such unconscious self-effacement, not uncommon among co-workers in science, imposes a heavy obligation on those that profit by it. Later on he became senior surgeon to the hospital at the time when Hughlings Jackson was senior physician, and had to treat surgically the complicated brain cases which only Jackson at that time could diagnose. Possibly Tay knew too much to be a great practitioner. He considered every possibility, and knew how little surgery could do in pre-antiseptic days. He lived alone, and was never married. He was quietly independent in a small way, and fond of cycling out to a simple lodging on the Brighton road. When a colleague pressed him to join in a holiday Tay always declined. 'My landlady would be so disappointed if I did not go as usual for Whitsun.' That expresses the man."

Mr. Tay lived for a long time in Finsbury-square. He retired from the staff of the London Hospital in 1902, being duly elected consulting surgeon.

THE LATE DR. NEVILLE WOOD.

Dr. A. F. HURST writes: No more useful drug has been introduced during the present century than liquid paraffin. It is strange therefore that the obituary notice of Neville Wood, the first man in England to recommend it, should contain no mention of his invaluable contribution to therapeutics. In 1906 he wrote a paper in the *West London Medical Journal* on the treatment of constipation by liquid paraffin, and it is only fair that his name should always be remembered in this connexion. It is true that Randolph, of Philadelphia, had used it in the treatment of constipation as long ago as 1885, but its modern popularity dates from 1906, and Neville Wood told me that he had no knowledge of Randolph's work when he wrote his article. Neville Wood had also already used liquid paraffin for a long time when Adolf Schmidt, of Halle, mentioned the subject in a paper on agar-agar, though this paper appeared the year before Wood published his own experience.

DONATIONS AND BEQUESTS.—By the will of the late Mr. James Froane, of Gotham-street, Leicester, who left £78,364, with net personalty £78,093, the testator bequeathed £2000 to the Children's Hospital in connexion with the Leicester Royal Infirmary; £2000 to the Leicester Association for the General Welfare of the Blind; £1000 to the Leicester Guild of the Crippled; £500 to the National Lifeboat Institution; and the ultimate residue of the property (estimated at over £50,000) to the Leicester Royal Infirmary.—The late Mr. William Hobbs Okey, J.P., of Portarlington-road, Bournemouth, left, among other bequests, £500 to the Royal Victoria and West Hants Hospital, Bournemouth; £250 to the National Sunday School Union Convalescent Home, Bournemouth; and £250 to the Victoria Home for Crippled Children, Bournemouth.—By will the late Viscountess Bearsted left, among other bequests, £5000 to the Building Fund of the Jewish Maternity Home, Underwood-street, Whitechapel; £500 to the West Kent General Hospital, Maidstone; £250 each to the London Hospital and Lord Mayor Treloar's Cripples' Home; and £200 to the Hospital for Women, Soho-square, W.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregation on May 20th the degree of Bachelor of Medicine was conferred on the Hon. C. B. Buckley.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates were successful in the under-mentioned subjects :—

Surgery.—P. V. Bamford, London Hosp.; F. W. Crossley-Holland, St. Bart.'s Hosp.; P. F. Fanaken, St. Mary's Hosp.; S. Goldman, London Hosp.; H. M. de Hartog, St. Mary's Hosp.; G. L. McDermott and E. H. Roberts, St. Bart.'s Hosp.; and V. K. Samy, Dundee.

Medicine.—P. Brookes, London Hosp.; J. H. Gillatt, Sheffield; A. W. Marsden, Birmingham and St. Thomas's Hosp.; W. D. Neill, London Hosp.; E. H. Roberts, St. Bart.'s Hosp.; V. K. Samy, Dundee; S. le R. Switzer, London Hosp.; and T. de L. Walker, King's College Hosp.

Forensic Medicine.—T. M. Beattie, Leeds; P. Brookes, London Hosp.; J. H. Gillatt, Sheffield; W. Howard, Liverpool; A. W. Marsden, Birmingham and St. Thomas's Hosp.; E. H. Roberts, St. Bart.'s Hosp.; and D. D. Stidston, St. Mary's Hosp.

Midwifery.—G. Danby, Manchester; J. A. Fernandez, St. Bart.'s Hosp.; A. W. Lassowsky, Basle and Middlesex Hosp.; M. H. Rashwan, Guy's Hosp.; E. A. Stroud, Birmingham; and L. D. Williams, Cardiff.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery :—

P. V. Bamford, P. Brookes, G. Danby, J. A. Fernandez, J. H. Gillatt, W. Howard, A. W. Marsden, W. D. Neill, V. K. Samy, and L. D. Williams.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on May 17th, Dr. A. Logan Turner, the President, in the chair, the 22 successful candidates, out of 44 entered, who passed the requisite examinations on Jan 7th, 1927, were admitted Fellows :—

James Neilson Adam, Harold Grover Armstrong, Thomas Oswald Chenoweth, Arthur Lynton Clowes, Amos Hubert Coleman, Kenneth Alexander Gilchrist, Alexander Campbell Gillies, Prabhakar Narayan Gokhale, Novbertus David Peter de Villiers Graaff, George Milne Gray, John Fereday Hackwood, William Keith Renwick Hamilton, Brian Maurice Johns, Balwant Govind Kane, John Joseph Kelly, Harry Lewis, Arthur Neil McMillan, Boddapati Tirumal Rao, Malcolm Stuart Ross, Robert Ritchie Simpson, Ahron Sourasky, and William Combe Wilson.

Passed between Sept. 27th and Oct. 4th, 1926: Ruth Elizabeth Millar.

Higher Dental Diploma.—The following candidates having passed the requisite examinations received the Higher Dental Diploma: William George Coventry, Clarence Victor Berry, and Edwin Priestley.

The Bathgate Memorial Prize was, after a competitive Examination in Materia Medica, awarded to Chee Juay Poh and Demetrius Maurice O'Flaherty who obtained equal marks.

UNIVERSITY OF BIRMINGHAM: FACULTY OF MEDICINE.—A lecture on Spa Treatment will be delivered on June 9th, at 4 P.M., in the medical lecture theatre by Dr. C. W. Buckley. The subject will be the Action of Mineral Waters in Disorders of the Stomach and Bowels. Members of the medical profession are invited to attend.

OXFORD UNIVERSITY JUNIOR SCIENTIFIC CLUB.—The 29th annual Boyle Lecture under the auspices of this club will be delivered on Saturday, June 4th, at 9 P.M., in the hall of Balliol College by Sir Leonard Rogers, F.R.S., on Climate and Disease Incidence in India: Forecasting Epidemics.

JOURNÉES MÉDICALES DE BRUXELLES.—This medical congress will be held from June 25th to 29th, under the presidency of Prof. Jean Verhoogen. A large number of foreign medical authorities will take part and there will be an international exhibition. The Belgian railways offer reduced fares to those attending the congress, of which further particulars may be had from the secretary-general, Dr. R. Beckers, at 62, rue Froissart, Brussels.

R.A.M.C. WAR MEMORIAL.—On May 22nd, after the afternoon service, a window was dedicated in Westminster Abbey in memory of more than 7000 officers, warrant officers, non-commissioned officers, and men, who lost their lives in the late war. The dedication was performed by the Dean (the Very Rev. W. Foxley Norris), and a guard of honour, consisting of an officer and 12 other ranks, was furnished by Regular and Territorial units of the corps. Buglers sounded Last Post and Reveillé and the National Anthem was sung at the end of the service. The window was designed and executed in stained glass by Mr. J. N. Comper. The names it serves to commemorate are enrolled in a book to be kept in the Chapter House.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on May 18th it was reported that the semi-general election of members of the Senate for the period 1927–31 had resulted in the following appointments, amongst others: By Convocation, Mr. W. G. Spencer, M.S.; by the Royal College of Physicians of London, Dr. J. Fawcett; by the Royal College of Surgeons of England, Mr. V. Warren Low, F.R.C.S.; by the Faculty of Medicine, Lord Dawson of Penn, M.D., and Mr. H. L. Eason, M.S.

Mr. Duncan MacCallum Blair was appointed as from August 1st, 1927, to the University Chair of Anatomy tenable at King's College. He received his medical education in the University of Glasgow, where he was awarded 20 first-class certificates of merit in the various classes of the medical course and obtained the M.B., Ch.B. degrees with honours in October, 1919. He served with the Royal Naval Volunteer Reserve for two years during the war. In 1919 he was appointed demonstrator in the anatomy department of Glasgow University, and in March, 1922, senior demonstrator and lecturer; since October, 1924, he has been lecturer in regional anatomy.

Dr. G. S. Wilson was appointed as from Oct. 1st, 1927, to the University Readership in Bacteriology and Immunology tenable at the London School of Hygiene and Tropical Medicine. He was educated at Epsom College, King's College, London, and Charing Cross Hospital. In 1916 he qualified as M.R.C.S. Eng., and graduated M.B., B.S. Lond., with distinction in medicine, surgery, midwifery, and pathology, and the gold medal; in 1919 he obtained the M.D. Lond. degree (pathology), and in 1920 became M.R.C.P. and took the D.P.H. He gained various prizes at Charing Cross Hospital and the governors' clinical gold medal. He served in the Royal Army Medical Corps from 1916–20 (during 1917 and 1918 in India). In 1919 he was appointed specialist in bacteriology at the Royal Army Medical College; in 1921 assistant in bacteriology under the Medical Research Council, and in 1923 lecturer in bacteriology in the University of Manchester. Since 1925 he has been assistant director of the Public Health Laboratory, Manchester. Dr. Wilson has published a number of papers in THE LANCET and other journals; the latest of them will be found on p. 1123 of this issue.

The title of Emeritus Professor of Ophthalmic Medicine and Surgery at University College was conferred on Mr. Percy Flemming.

The Dunn Exhibitions in Anatomy and Physiology were awarded to Mr. K. M. Robertson, an internal student, of St. Thomas's Hospital Medical School.

The following resolution was passed:—

That Sir William Collins be informed that the Senate have learned with great regret of his decision not to seek reappointment on the termination of his period of office as one of the representatives of the London County Council on their body, and that they desire to place on record their high appreciation of the distinguished services which for so many years he has rendered to the University.

With reference to the anonymous offer, already announced, of £10,000 towards the establishment of a chair of dietetics, the Vice-Chancellor stated that Messrs. A. Wander, Ltd., had now intimated their desire to contribute a similar sum to the same object.

The Vice-Chancellor announced that he had received from a donor, who desires to remain anonymous, an offer of £250 as a contribution towards any preliminary expenses involved in the preparation of a comprehensive plan for the development of the Bloomsbury site.

University College, University of London.—Three public lectures on Experimental Vital Statistics will be given at University College, Gower-street, W.C., on June 8th, 9th, and 10th, by Prof. Raymond Pearl, director of the Institute for Biological Research, Johns Hopkins Hospital, Baltimore.

ROENTGEN SOCIETY.—The twenty-eighth annual meeting of the American Roentgen Ray Society will be held in Montreal from Sept. 20th to 23rd, under the presidency of Dr. A. Howard Pirie, of Montreal. This is the first occasion on which the Society has met outside the United States; and, to acknowledge the honour paid to a British radiologist by his election to the presidency of the Society, a party of radiologists from this country is going to Montreal in September. Dr. G. W. C. Kaye has been invited by the Society to give the Caldwell lecture.

SOCIETY FOR THE STUDY OF INEBRIETY.—At a meeting of this society to be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., on Tuesday, July 12th, at 4 P.M., a short presidential address on the aims and work of the society will be given by Sir Arthur Newsholme, after which Dr. Godfrey Carter will open a discussion on Drunkenness and its Detection, particularly in regard to Blood and Urine Alcoholic Concentration as a Guide to Intoxication.

ROYAL SOCIETY OF MEDICINE.—The house and library of this Society will be closed on Saturday, June 4th, and Monday, June 6th.

Lieut.-Colonel James Cran, P.M.O., British Honduras, has been appointed an official member of the Legislative Council of the Colony.

TYPHOID FEVER IN MONTREAL.—It is stated that there have been nearly 1400 new cases of typhoid fever in Montreal since May 1st.

Major John Penberthy, who was for many years professor of pathology and of medicine at the Royal Veterinary College, and was President of the Royal College of Veterinary Surgeons in 1897, died suddenly at Bath on May 23rd.

ST. BARTHOLOMEW'S HOSPITAL: "FLEET-STREET WEEK."—The sum of £33,377 was raised by the "Fleet-street Week" which was held last October. This sum includes all receipts from May 25th, 1926, to March 14th last. The expenses were £1,061.

POPLAR HOSPITAL FOR ACCIDENTS.—A new children's ward was opened last week. Sir Joseph Broodbank, the Vice-Chancellor of the hospital, stated that its erection was necessitated by the increase of accidents to children caused by the growth of road traffic.

INVALID CHILDREN'S AID ASSOCIATION.—Lord Burnham presided last week at the annual meeting held at Lord Howard de Walden's house in Belgrave-square. Last year over £84,000 was raised, 18,000 cases were helped, and 7500 children sent away. The parents contributed over £15,000 towards the cost of treating their children.

LONDON ROYAL FREE HOSPITAL.—A fair in aid of the Centenary Fund of the hospital will be held on June 10th and 11th at the London School of Medicine for Women, Hunter-street, W.C. There will be dancing, students' entertainments, and music.

A HOSPITAL GARDEN FÊTE.—The British Charities Association, on the last three days of last week, held its third annual garden fête in aid of the voluntary hospitals, at the Royal Botanical Gardens, Regent's Park. The fête was opened by the Princess Royal.

AN ordinary meeting of the Circle of Scientific, Technical, and Trade Journalists will be held on Wednesday next, June 1st, in the Hall of the Institute of Journalists, Tudor-street, London, E.C., when a discussion will be initiated at 5 P.M. on the Relations between Writer and Editor in Scientific and Technical Articles, by Sir Richard A. Gregory.

DENTAL CLINIC FOR CHILDREN.—The secretary of the British Dental Hospital informs us that a special dental clinic for children under 5 years of age has been opened at Battersea, in conjunction with the Battersea Borough Council's maternity and child welfare scheme, providing for the dental treatment of expectant and nursing mothers. The dental surgeon appointed is Mr. J. Rhys-Herbert.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, May 30th, at 2 P.M., at the Royal Waterloo Hospital, Dr. A. S. Woodwark will give a lecture on diabetes, and on the same day, at the same hour, Mr. W. McK. McCullagh will give a special clinical demonstration at the Samaritan Hospital for Women. Both lecture and demonstration are free to members of the medical profession. A series of demonstrations will take place during June at the Royal Eye Hospital; the first will be given by Mr. Letchworth on June 9th, at 3 P.M. From June 8th to 21st the Chelsea Hospital will hold one of its special courses on the diseases of women. (Fee £5 5s.) From June 8th to 29th the Central London Ophthalmic Hospital will hold an afternoon course, during which the clinical practice of the hospital will be open. (Fee £3 3s.) If desired, an operative course can be arranged, for which the fee will be £5 5s. From June 13th to 25th a course in diseases of children has been arranged, in which several hospitals will take part. This course will be under the direction of Dr. Bernard Myers, of the Children's Clinic, where some of the sessions will take place. (Fee £2 2s.) An afternoon course has been arranged at the Blackfriars Skin Hospital from June 20th to July 1st. Special cases of interest will be shown on each Tuesday. (Fee £1.) The City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, will hold a special course from June 27th to July 9th; the practice of the hospital will be open to those enrolling. (Fee £2 2s.) Practical courses in anæsthetics and obstetrics can be arranged for by the Fellowship, which can also make arrangements for clinical assistantships in gynæcology. The Fellowship also provides a general course of instruction at the associated hospitals, for which a separate programme is published. Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

WEDNESDAY, June 1st.—5 P.M., SURGERY. (Cases at 3.30 to 5 P.M.) Discussion on the Treatment of Cleft Palate by Operation. Openers: Sir James Berry and Mr. Grey Turner. Other speakers: Mr. Addison, Mr. Seymour Barling, Mr. Barrington-Ward, Mr. C. H. Fagge, Mr. John Fraser, Mr. Kelsey Fry, Mr. Gillies, Mr. Goyder, Mr. Twistington Higgins, Mr. Warwick James, Mr. T. P. Legg, Mr. Cortlandt MacMahon, Mr. Nitch, Mr. Pitts, Mr. Rayner, Dr. Victor Veau (Paris), and Mr. Wardill. Demonstration (at 3.45 P.M.): Mr. Wardill: Demonstration of an Apparatus for the Estimation of Palatal Incompetence, with especial reference to Deficiencies of Speech.

THURSDAY.—5 P.M., COMPARATIVE MEDICINE. Adjourned meeting to conclude the discussion of the paper by Dr. M. J. Rowlands on Rheumatoid Arthritis—Is it a Deficiency Disease?—read before the Section on Wednesday, May 25th.

FRIDAY.—8.30 P.M., SOCIAL EVENING. From 8.30 to 9 P.M. Fellows and guests will be received in the Library by the President and Lady Berry. Members of the Inter-State Post-Graduate Assembly of North America will be invited. At 9.30 P.M. an address will be delivered by Dr. G. W. C. Kaye, Superintendent, Physics Department, National Physical Laboratory, Teddington, on X Rays and Some of Their Uses.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, May 30th, to SATURDAY, June 4th.—FELLOWSHIP OF MEDICINE. On Mon., at 2 P.M., Dr. A. S. Woodwark will give a lecture on Diabetes at the Royal Waterloo Hospital. On the same day, at 2 P.M., Dr. W. McK. McCullagh will give a clinical demonstration at the Samaritan Hospital for Women. The above are free to members of the medical profession.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, May 30th.—2 P.M., Medical Cases in the Wards. 2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY, June 1st.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations. 4.30 P.M., Special Demonstration on Selected Cases of Nerve Diseases by Dr. L. R. Yealland.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, May 30th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 2 P.M., Dr. Ironside: Medical Out-patients. 5 P.M., Mr. Addison: Inflammatory Conditions of Breast.

TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Addison: Operations. 4 P.M., Mr. Sinclair: Gastric and Duodenal Ulcer.

WEDNESDAY, June 1st.—10 A.M., Dr. Owen: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 5 P.M., Mr. Donald Armour: Head Injuries.

THURSDAY.—10 A.M., Dr Grainger Stewart: Neurological Department. 2 P.M., Mr. Bishop Harman: Eye Department. 4 P.M., Dr. Snowden: Development of the Mind.

FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward Visit. 10 A.M., Dr. Owen: Medical Diseases of Children.

Operations, Medical, Surgical and Special Out-patients daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, May 31st.—5 P.M., Dr. H. Haldin-Davis: Drug Eruptions.

THURSDAY, June 2nd.—5 P.M., Dr. A. Whitfield: Eczema (1).

GUY'S HOSPITAL MEDICAL SCHOOL, London Bridge, S.E.

FRIDAY, May 31st.—5.30 P.M., Prof. E. H. Kettle: Inflammation and Infection. (Third of four free lectures.)

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.

THURSDAY, June 2nd.—5 P.M., Prof. C. A. Lovatt Evans: The Alkalinity of the Blood.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, Hunter-street, W.C.

MONDAY, May 30th.—5.30 P.M., Prof. H. Beckwith Whitehouse: The Menstrual Function. (Last lecture.)

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, May 31st.—3.15 P.M., Dr. C. C. Beatty: Dyspepsia in Children.

UNIVERSITY COLLEGE, Gower-street, W.C.

TUESDAY, May 31st.—5.30 P.M., Mr. W. H. McLean (late Sudan Government Services): National, Regional, and Town Development Planning. (Last lecture.)

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

TUESDAY, May 31st.—3.30 P.M. (at the Jessop Hospital), Prof. Phillips: Some Obstetrical Emergencies.

FRIDAY, June 3rd.—3.30 P.M. (at the Royal Infirmary), Mr. Mouat: Clinical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, May 31st.—4.15 P.M., Dr. T. H. Oliver: The Parathyroid Gland and Its Use in Medicine.

Appointments.

CAMPBELL, JANET R., M.B., Ch.B. Glasg., D.P.H., Asst. Medical Officer and School Medical Officer for Chesterfield.

St. Thomas's Hospital: HARPER, C. H., M.R.C.S., L.R.C.P. Lond., THOROLD, G. P., M.B., B.Ch. Oxf., ELLIS, R. W. B., M.B., B.Chir. Camb., CONNELL, A. B., M.R.C.S., L.R.C.P. Lond., WIGLEY, J. G., M.B., B.Chir. Camb., METCALFE, R. H., M.B., B.Chis. Camb., YULE, E., M.R.C.S., L.R.C.P. Lond., L.D.S. Vict., B.D.Sc., Melb., D.D.S. Chicago, RICHARDSON, L. A., M.B., B.Chir. Camb., Casualty Officers and Resident Anæsthetists: MILFORD, R. D., M.B., B.Chir. Camb., AMIES, C. R., M.B., B.S. Lond., LING, T. M., M.B. B.Ch. Oxf., WILLIAMS, D. O., M.B., B.Ch. Oxf., Resident House Physicians: CHIESMAN, W. E., M.B., B.Chir. Camb., Resident House Physician (for Children); BLAXILL, B., M.R.C.S., L.R.C.P. Lond., FOTHERGILL, E. L., M.B., B.Ch. Oxf., CROFT, C. R., M.B., B.Ch. Oxf., BYRNE-QUINN, A., M.B., B.S. Lond., Resident House Surgeons; TIPPETT, G. O., M.B., B.S. Lond., Resident Orthopædic House Surgeon; SCREECH, J. A., M.B., B.S. Lond., Resident House Surgeon for the Ear; MORRIS, J., M.B., B.Chir. Camb., Resident House Surgeon for the Throat; WRIGLEY, A. J., M.B., B.S. Lond., F.R.C.S. Eng., DEWEY, T. S., M.B., B.Chir. Camb., Obstetric House Physicians; DYKES BOWER, M., M.B., B.Ch. Oxf., BARNES, J. F. L., M.R.C.S., L.R.C.P. Lond., Ophthalmic House Surgeons; HARTLEY, J. A., M.R.C.S., L.R.C.P. Lond., STENT, J. F., M.R.C.S., L.R.C.P. Lond., MARRINER, H. I., F.R.C.S. Edin., COX, H. T., M.R.C.S., L.R.C.P. Lond., WALLIS, A. S., M.R.C.S., L.R.C.P. Lond., CAROTHERS, J. C. D., M.R.C.S., L.R.C.P. Lond., NEILSON, D. F. A., F.R.C.S. Eng., WALFORD, A. S. H., M.B., B.Chir. Camb., F.R.C.S. Eng., ASHTON, J. M., M.R.C.S., L.R.C.P. Lond., GEORGE, J. B., M.R.C.S., L.R.C.P. Lond., BARRON, H. T., M.D. Lond., BEVAN, A., M.D. Lond., APTHORPE, R. G., M.R.C.S., L.R.C.P. Lond., HENRY, G. R. N., M.R.C.S., L.R.C.P. Lond., LLOYD-WILLIAMS, P., M.R.C.S., L.R.C.P. Lond., L.D.S., NOSWORTHY, M.D., M.R.C.S., L.R.C.P. Lond., NICOBY, C., M.R.C.S., L.R.C.P. Lond., HALLETT, D. B. I., M.B., B.Ch. Oxf., D.M.R. & E. Camb., PHILLIPS, R. A., M.R.C.S., L.R.C.P. Lond., PURVIS, W. P., M.R.C.S., L.R.C.P. Lond., LANKESTER, A. H., M.R.C.S., L.R.C.P. Lond., WALLIS, A. S., M.R.C.S., L.R.C.P. Lond., SHIRES, B., M.B., B.Ch. Edin., RICKMAN, J., M.D. Camb., BABINGTON, G. C., M.R.C.S., L.R.C.P. Lond., BURROWS, S. M., M.R.C.S., L.R.C.P. Lond., WALTON, L. H. F., M.R.C.S., L.R.C.P. Lond., BROCKMAN, E. P., M.B., M.Chir. Camb., F.R.C.S. Eng., BUTLER, R. W., M.R.C.S., L.R.C.P. Lond., FARMER, A. P., M.R.C.S., L.R.C.P. Lond., FITZGIBBON, G. M., M.R.C.S., L.R.C.P. Lond., WINDSOR, C. G., M.R.C.S., L.R.C.P. Lond., GOADBY, H. K., M.R.C.S., L.R.C.P. Lond., MILWARD, F. J., M.R.C.S., L.R.C.P. Lond., STEVENSON, T. C., M.R.C.S., L.R.C.P. Lond., ROWAN, G. E., L.M.S.S.A., M.R.C.S., L.R.C.P. Lond., PURCELL, F. W. F., M.R.C.S., L.R.C.P. Lond., ADDISON, G. M., M.R.C.S., L.R.C.P. Lond., ODDIE, R., M.R.C.S., L.R.C.P., Lond., Chief Assistants and Clinical Assistants.

Certifying Surgeons under the Factory and Workshop Acts: MCGREGOR, A. W., L.R.C.P., L.R.C.S. Edin., L.R.F.P.S. Glasg. (Mauchline District of Ayr); DAVIES, D., L.R.C.P. Lond., M.R.C.S. (Resolven District of Glamorgan).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Res. Sen. H.S. At rate of £200. Also Non-Res. Jun. H.S. At rate of £150.

Barking Town Urban D.C.—M.O.H., &c. £850.

Belfast, Mater Infirmorum Hospital.—Hon. Radiologist.

Birmingham City Education Committee.—Asst. Sch. M.O. £600.

Bolingbroke Hospital, Wandsworth Common, S.W.—Hon. P. Dermatologist. Hon. Asst. P. Neurology, Hon. Asst. Ophth. S. Also H.P. At rate of £120.

Bradford, City of.—Asst. School M.O. £600.

Bristol General Hospital.—Hon. Clin. Assts.

Bristol Royal Infirmary.—H.P. £80.

Burton-on-Trent Infirmary.—H.S., Jun. Res. H.S. £150.

Buxton, Derbyshire, Devonshire Hospital.—Asst. H.P. £150.

Canterbury, Kent and Canterbury Hospital.—3rd Res. M.O £125.

Charing Cross Hospital, Strand, W.C.—Registrar. £100. Also Hon. Anæsthetist.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.

Chester Royal Infirmary.—Third H.S. £150.

City of London Hospital for Dis. of Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.

Federated Malay States.—Radiologist. $500–25–800 a month.
Foot-and-Mouth Disease Research Committee.—Research O. £750.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.S. At rate of £100. Cas. Surg. O. at Out-patient Dept. At rate of £100.
Hospital for Sick Children, Great Ormond-street, W.C.—R.M.O. for Branch Hospital, Tadworth Court, Walton Heath, Surrey. At rate of £250. Also H.P. and H.S. Each £50.
Kent County Mental Hospital, Chartham, near Canterbury.—Jun. Fourth Asst. M.O. and Pathologist. £350.
Liphook, Hants, King George's Sanatorium.—Asst. M.O. At rate of £200.
Liverpool, Walton Institution, Rice-lane.—Res. Asst. M.O. £200.
London Hospital, E.—Gynæcological and Obstetric Dept.—Res. First Asst. £300.
Manchester, Ancoats Hospital.—H.S. At rate of £100.
Manchester City Education Committee.—Two Asst. Sch. M.O.'s. £600.
Manchester, Royal Manchester Children's Hosp.—Sen. M.O. £300.
Middlesbrough, North Riding Infirmary.—Hon. Anæsthetist.
Middlesex Hospital, Ferens Institute of Otolaryngology.—Bernhard Baron Research Studentship. £300.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Sen. Res. M.O. £140. Jun. Res. M.O. £100. Also Asst. Cas. O. At rate of £100.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst. P.
Newark Hospital.—Res. H.S. £200.
Northampton County Borough Education Committee.—Asst. School Dentist. £450.
North Middlesex Hospital, Edmonton, N.—Asst. M.O. £400.
Oxford, Radcliffe Infirmary and County Hospital.—H.S. and Obstet. H.P. At rate of £120.
Plymouth, Borough of.—Asst. Port M.O. £750.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Asst. Res. M.O. At rate of £80.
Queen Mary's Hospital for the East End, Stratford, E.—Hon. Asst. Phys. Also H.P., H.S.'s. Obstet. H.S. Also H.P. and Cas. O.
Rochdale Infirmary and Dispensary.—Jun. H.S. £200.
Royal Chest Hospital, City-road, E.C.—P. to Out-patients.
Royal Dental Hospital of London, Leicester-sq., W.C.—Hon. Path.
Royal Free Hospital, Gray's Inn-road, W.C.—Res. Anæsthetist.
Royal London Ophthalmic Hospital, City-road, E.C.—Out-patient Officers. Each £100.
Royal Naval Dental Service.—Dental Officers.
Royal Northern Hospital, Holloway, N.—Asst. Surg. O. £75.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Asst. Ophth. Surg.
St. Leonards Hospital, 204, Horton-st., N.—Asst. Res. M.O. £350.
Sheffield Royal Infirmary.—H.S. At rate of £80.
Smethwick County Borough.—Asst. M.O.H. £550.
Southampton Free Eye Hospital.—H.S. £150.
South London Hospital for Women, South Side, Clapham Common, S.W.—Clin. Asst. to Ear, Nose, and Throat Dept.
University of London.—University Chair of Pathology. £1000.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.
Warwickshire, King Edward VII. Memorial Sanatorium, Hertford Hill, near Warwick.—Asst. Res. M.O. £350.
Willesden General Hospital, Harlesden-road, N.W.—Hon. Surg. to Ear, Nose, and Throat Dept. Also Clin. Assts. to Out-patients.
Windsor, King Edward VII. Hosp.—Jun. H.S. At rate of £100.
Woolwich Union.—M.O. £200.
York Dispensary.—Res. M.O. £150.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Canterbury, Kent; Chepstow, Mon.; Tarbert, Argyll; and Totnes, Devon.

The Home Secretary gives notice that he is considering the appointment of an additional Medical Referee under the Workmen's Compensation Act for the districts of the Chester, and Nantwich and Crewe County Courts (Circuit No. 7). Applications for the post should be addressed to the Private Secretary, Home Office, and should reach him not later than June 15th.

The Home Secretary also gives notice that, owing to the resignation of Dr. T. Ferguson, a vacancy has arisen for a Medical Referee under the Workmen's Compensation Act for Dumfries County (Sheriffdom of Dumfries and Galloway). Applications for the post should be addressed to the Private Secretary, Scottish Office, Whitehall, London, S.W. 1, and should reach him not later than June 15th.

Births, Marriages, and Deaths.

BIRTHS.

BRAINE.—On May 22nd, at Bentinck-street, W., the wife of John Carter Braine, F.R.C.S., of a daughter.

MARRIAGES.

MORRISON—COLLINS.—On May 19th, at Holy Trinity Church, Marylebone, W., Henry Morrison, M.A., M.D. Camb., to Olive Mary Collins, daughter of Maurice Collins.

PARSONS—SABBERTON.—On May 18th, at St. Andrew's Church, Chesterton, Cambridge, Frank Bett Parsons, M.B., L.R.C.P., M.R.C.S., to Elizabeth Winter, only daughter of Mr. and Mrs. R. W. Sabberton, of the Ferry House, Chesterton, Cambridge.

DEATHS.

BRYCE.—On Sunday, May 8th, 1927, at 72, Stroud Green-road, London, N., John Richmond Bryce, M.D., D.P.H., Barrister-at-Law, in his sixty-sixth year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

A CRITICAL REVIEW OF SOME MEDICAL VIEWS ON BIRTH CONTROL.

BY C. P. BLACKER, M.R.C.S. ENG.

So recently has the subject of artificial control of conception come within the acknowledged orbit of the medical profession, and so strongly felt is the opposition to it in many quarters still, that the reader should not expect to find, in any existing work purporting to be a compendium of different opinions, anything approaching unanimity. Yet, full allowances for diversities of outlook having been made, the disagreements between the various contributors to the most recently published symposium on the subject may cause some surprise, more especially as the choice of writers seems to have been restricted to those whose views on birth control range only from cautiousness to open opposition. The collection of essays[1] in question, written by six medical men and two medical women, with an introduction written by Sir Thomas Horder, has been produced under the editorship of Sir James Marchant, the secretary of the National Birth Rate Commission.

In his introduction, Sir Thomas Horder warns his readers not to be disappointed if they discover that the papers which follow are written "more in a spirit of scientific inquiry than to give expression to a personal conviction, still less to personal inclination" (p. ix.). Better would this warning have been omitted. Of relevant scientific inquiry there will be found in these pages little. Of expression of personal conviction there is provided more than enough. Two of the contributors are committed by their religious beliefs to an attitude of hostility to birth control which renders disinterested scientific inquiry practically impossible. When one writer assails a given process which is supposed to be under investigation with every available argument, and concludes that the process in question is contrary to God's will, it is difficult to believe that collaboration is being given to disinterested scientific inquiry, and that personal convictions, still more inclinations, are being entirely eliminated.

Sir Thomas Horder, "despite considerable time spent in reading the views of others, and no less time spent in thinking upon this large and important matter," finds that his own opinion persists in remaining unformulated. Advocates of birth control are relegated to three groups. Supporters of women's rights and labour leaders make the first two groups, while sociologists, eugenists, and patriots together constitute the third group, whose claims to be heard merit the closest attention. It is noteworthy that medical men and women are inconspicuous within this group, but the silence of the profession, it is argued, is due rather to appreciation of the difficulties which surround it than to indifference or defective training; but as regards this point Dr. Letitia Fairfield, who, on page 115, observes that "the subject of contraception is not even taught in the medical schools," holds contrary views to Sir Thomas Horder. Turning to the practical aspects of the question, Sir Thomas Horder, in common with Dr. Crichton-Miller and Dr. Buist, but in contrast to Dr. Mary Scharlieb, considers abstinence an impracticable solution. Likewise is rejected as feasible restriction of intercourse to the "safe" period, on the grounds that the safety pertaining to this period is of dubious value, and that the time of a woman's low procreative power does not always synchronize with her period of high sex desire. To this argument, Sir Thomas Horder says, he had seen no reference made till he read these essays. In condemning the safe period, he is in agreement with Dr. Buist (p. 94), but in disagreement with Dr. Scharlieb (p. 62) and Dr. Giles (p. 82). Dr. Crichton-Miller does not give his views on the psychological aspect of this point, which is regrettable. Chemical methods of preventing conception are condemned, and, less roundly, mechanical methods also; with some inconclusive remarks upon the double bearing of birth control upon the individual in his private life, and upon organised society, the introduction comes to an end.

The first paper in the book is by Dr. Crichton-Miller upon "The Psychological Aspect of Contraception." Despite its title, this essay is concerned more with the ethical than with the psychological aspects. The writer condemns infanticide, abortion, and coitus interruptus, and holds that abstinence, though feasible in a few, is not practicable in the majority of cases. Without discussing the important question raised by other

[1] Medical Views on Birth Control. By Eight Writers. Martin Hopkinson and Co., Ltd. 1926. Pp. 172. 6s.

writers of the relation that may exist between neuroses and the use of contraceptives, he does not seem to give much weight to this relation. The sentence: "Modern contraceptives that are both reliable and innocuous enable a young married couple to contemplate parenthood as such, and isolated from other considerations" (p. 14) seems to imply that in Dr. Crichton-Miller's view some modern contraceptives are both reliable and innocuous. It is a pity that he did not proceed to specify which contraceptives he regarded in this light, what he considers the degree of their reliability and the conditions of their innocuousness. His attitude to birth control is tolerant, and is brought into line with a philosophy of life described as a "gospel of trusteeship." Man is "entrusted" with certain powers and liberties of which he must make fullest use. Contraception has enriched and at the same time endangered marital relations. The perils which are opened up can only be avoided through humanity striving towards a higher level of personal idealism than now obtains. Contraception has in fact rendered both more august and more precarious the "stewardship of the clean blood of the race" (p. 24). The ethical outlook implied by belief in "trusteeship" in this context is irreconcilably opposed to the ethical outlook of Drs. Scharlieb and Fairfield as expressed in later chapters. This essay, which can best be regarded as a philosophy of birth control, is carefully and in places inspiringly written.

The next contribution, from the pen of Dr. Leonard Hill, is called "Fertility and its Control." Consideration of the vital statistics of this country reveals discrepancies in fertility between different classes which there are reasons for supposing may be, in part, expressions of vicissitudes in race physiology rather than consequences of birth control. Poor food and hard work conduce to fertility. Idleness, abundant food, and high intellectual capacity lead to sterility. There is evidence that the seminiferous tubules of the testicle require exposure to alternations of temperature in order to function their best. Thus monotonous warm atmospheres and overclothing may lead to lessened fertility. The fecundity of animals is promoted by feeding them on food containing abundant vitamins and calcium, and by exposing them to sunlight. In common with most of the other writers in this book, Dr. Hill asserts that contraceptives produce permanent sterility, though no evidence is advanced by him any more than by the others to indicate which contraceptives have this effect. His essay, in fact, shows that the allegation that the use of contraceptives has in any given case produced sterility, is a very difficult one to prove, seeing how much sterility seems to exist quite apart from the use of contraceptives.

The third paper is written by Dame Mary Scharlieb, an uncompromising opponent of birth control. She begins her essay with the statement that the problem of whether artificial prevention of conception benefits or injures those who practise it is not one that lends itself to statistical treatment. Six arguments customarily advanced by birth-controllers are considered, and answers to them are propounded which vary much in the extent to which they are likely to produce conviction in the reader. To normal people anxious to space their families, three pieces of advice should be given by the doctor. Firstly, they should be told to restrict intercourse to the "safe" period—i.e., from the seventeenth day of the inter-menstrual period until the end of this period. (German figures are reproduced from another book indicating that this period is really "safe"—a view not shared by other writers in this book). Secondly, they should be advised to avail themselves of the period of lactation which is usually one of infertility. Lastly, normal people should be informed "that marriage is not intended as a mere sanction of cohabitation . . . but that it exists for the high and holy purpose of the increase of the human race for a kindly provision for the right fulfilment of God-given instincts, and also for the spiritual and moral joy of the couple" (p. 64). The man or woman who will not thus practise self-restraint, who uses, in fact, any form of contraceptive, is practising "*Masturbation à deux*" (p. 64). The essay ends with the remark that the whole aspect and story of artificial birth control is so sordid that it is difficult to understand that anyone should be willing to advise such methods. This paper is an impressive statement both of inclination and of conviction.

The fourth contribution is by Dr. A. E. Giles, who holds that the best method of preventing conception is, when possible, abstinence. "The next best plan is the restriction of intercourse to the times when conception is least likely to occur" (p. 82). Other methods are described, but are collectively regarded as inferior to these two. This essay, however, stands out in that it contains the only piece of original statistical evidence bearing upon the harmfulness of contraception which will be found in this book. The figures are held to indicate that fibroids of the uterus are caused by the use of contraceptives. "Of 881 cases," writes Dr. Giles," in which the diagnosis of fibroid tumours was verified by operation, 271, or 30·8 per cent., occurred in single women; 176, or 20 per cent., were in childless married women. . . The remaining 434, or 49·2 per cent., were in women who had had children, but among them the average time that had elapsed since the birth of the last child was 10 years." From these figures Dr. Giles considers it sound to conclude "that if uterine congestion is frequently stimulated by married life without the opportunity of this congestion finding its normal outlet in pregnancy, it is all the more prone to expend itself in the formation of fibroid tumours. Consequently, when birth control is practised from the outset of married life, before any pregnancies have taken place, it seems certain that the practice favours the development of fibroid tumours of the womb" (pages 87 and 88). The certainty of this conclusion would appear, however, to be somewhat weakened by the fact that nearly a third of Dr. Giles's cases were unmarried women in whom uterine congestion had, presumably, never been stimulated by married life. As they stand, Dr. Giles's figures seem to suggest that uterine fibroids are just as likely to be caused by abstinence as by the use of contraceptives.

The next essay is written by Dr. A. C. Buist, who rejects abstinence as a method of birth control, on the grounds that it is "usually not feasible, and when it is feasible, not always harmless" (p. 93). Likewise opposed are coitus interruptus, the utilisation of the "safe" period, and the practice of douching after coitus. Other preferable methods are passed over with the remark that they are "described in sufficient detail in available publications." The rest of the paper is concerned with ethical, biological, and social considerations from which no definite conclusion is drawn.

The sixth paper is contributed by Dr. Letitia Fairfield, and is called "The State and Birth Control." Dr. Fairfield, who writes with a clarity and vigour not conspicuous in much of the book, argues that if the Ministry of Health were to authorise local authorities to give information on contraception to whomsoever asked for it (which was the measure proposed recently in the House of Commons), two unfortunate consequences would follow. The first is that maternity and child-welfare centres, which are partly supported by private subscription and partly subsidised by the Ministry of Health, would, so far as their private support is concerned, be split from top to bottom if the teaching of birth control were compulsorily made a part of their function. The second difficulty consists in the impossibility of leaving to the medical man or woman in charge of the centre the decision as to whether the conditions of economic difficulty under which a given patient is living, provide justification for teaching that patient contraceptive methods. This is a valuable essay, which all advocates of birth control would do well to study despite the ill-concealed dislike manifested of Neo-Malthusians and Eugenists—classed together—who are held to advocate birth control because they contemn humanity (p. 129); the people alluded to on the last line but two are clearly the Neo-Malthusians and Eugenists attacked at the bottom of p. 108 and the top of p. 109. Medical officers of health, on the other hand, are represented as advocating birth control because they respect and love humanity (p. 112). That Dr. Fairfield's dislike of birth control may, in part at any rate, be inspired by theological considerations is suggested by one of her concluding sentences: "The demand for birth control is begotten of despair in God and man, it will grow as belief in religion and the dignity of man fails, and it can only be countered by a re-affirmation of belief in both." It might be commented that a contempt for humanity is not necessarily implied by the belief that human beings differ from one another in value, and that these differences have an effect upon society.

Sir Arthur Newsholme devotes the next contribution to "Some Public Health Aspects of Birth Control." His contention, which is mainly statistical in nature, is that though the recent decline in the birth-rate has not yet produced a stationary population (our population is increasing to-day at the rate approximately of 1 per cent. per annum—i.e., over 5000 a week), there is, so far as can be seen at present, a likelihood that the birth-rate will fall further, and that this contingency will be realised or even exceeded in a decreasing population. The writer proceeds to argue that socially valuable qualities are not necessarily the monopoly of the well-to-do, but may be equally distributed throughout all social strata. What differences are manifested between different classes in this matter are as likely to be the products of environmental as of hereditary processes, so that in aiming at improving the environment of the less well-to-do, we are on safer ground than in urging them to adopt birth control.

The last paper is written by Sir John Robertson. After some obscure reflections upon the beneficence of Nature in "stepping in" and spacing the intervals at which children are born into human families (p. 152), this authority proceeds to consider the fertility rates of unskilled as compared to the artisan classes, and of urban as against rural districts. The indications for the exercise of conception control are reviewed, and it is

concluded that for normal people artificial birth control is not necessary, because "Nature is a sufficient teacher" (p. 163). What, precisely, is here meant by "Nature," thus personified, is not made clear. It would seem that by it the writer understands the sum of those processes which, in a slum area near Birmingham, are responsible for prolonging the average interval between children from 18 months to over three years. The most valuable part of this paper will be found in the last three pages, in which Sir John Robertson advances interesting evidence of the demoralisation caused among young unmarried men and women in and around Birmingham, by the propaganda of firms that manufacture contraceptives. Realisation, in fact, of the pernicious influence of this trade was alone responsible for persuading this writer to contribute to the book under review. So harmful does he consider the wholesale distribution of contraceptives among the unmarried, that he would advocate the suppression by law of all advertisements relating to contraceptives. With this important plea, the book ends.

It will be seen that there is little harmony of opinion in this work. There are irreconcilable differences of ethical opinion, and there are differences no less fundamental with regard to method. Differences in ethical opinion are inevitable, and could only be avoided by restricting the choice of writers even more drastically than has been done by Sir James Marchant here. But differences with regard to method fall into a different category. These are capable of almost complete reconciliation by reference to data. Statistical evidence the book contains; but it has little bearing upon the limited medical question which confronts the practitioner who has to decide how best to advise a patient who wishes to avoid pregnancy. In a book purporting to express medical opinion, it is reasonable to expect medical problems to be discussed. Yet questions such as: What is the exact evidence for supposing that contraceptives produce sterility? If sterility is thus produced, which contraceptive is most likely to produce it—coitus interruptus, the sheath, the douche, the quinine suppository, the lactic acid suppository, or the rubber pessary? Which of the above methods is most likely to produce psychoneurosis? How often are erosions or other genital disease caused by rubber pessaries? Which method is the most reliable, and which least? After pelvic examination by a doctor and after fitting of the pessary, is the likelihood of failure, or the probability of genital disease diminished?—these and numerous other strictly medical questions, upon which all practitioners who are consulted on this matter will desire information, remain, in this book, not only unanswered but practically unraised.

It may be taken as certain that this is very far from being the last word that the medical profession will have to say on birth control.

PHARMACISTS AND EARLY CLOSING.

THE DEPARTMENTAL COMMITTEE'S INQUIRY.

EVIDENCE was given last week by Mr. H. J. MARTIN, chairman, and Mr. G. A. MALLINSON, secretary, of the Retail Pharmacists' Union, before the Departmental Committee appointed by the Home Secretary to inquire into the working of the Shops (Early Closing) Acts, 1920 and 1921, and to consider and report whether it is desirable that those Acts should or should not be made permanent, and, if so, whether with or without modifications.

They stated that the Retail Pharmacists' Union represents the retail chemists of England and Wales and that its membership exceeds 7000 out of a possible total of approximately 8500. Membership is confined to persons, firms, and bodies corporate actually keeping open shop for the sale of medicines, &c., in accordance with the requirements of the Pharmacy Acts. The membership does not include the large multiple shop chemist concerns, but it claims to cover very effectively the smaller chemists as well as those in a larger way of business. The business hours of pharmacists before the introduction of compulsory early closing were exceeded by very few of the other retail trades. It was a common practice, particularly in the towns and cities, for chemists' hours to be from 8 A.M. to 9 P.M. to 10 P.M. every day with Saturday an hour later. Even in the country districts the chemists' shop was usually the last one to close and there the general closing hour was from 8.30 P.M. to 9.30 P.M. In those cases where it was not possible for the proprietor to keep a qualified assistant, he obtained no relief whatever and had to be continuously on duty 13 hours per day. The popular idea had been that the pharmacist lived over his premises to give the public the opportunity of obtaining medicines out of hours. In fact it was absolutely necessary for the single-handed pharmacist for physical reasons. An outstanding result of the introduction of early closing had been the improved physical condition of both pharmacists and their assistants owing to their having opportunities for outdoor exercise and recreation. Inquiries had revealed the fact that the great majority of customers realised the relief given by the shorter hours to pharmacists and had not expressed any desire that there should be a return to the old conditions. The minority who had expressed other views had changed their opinion when they discovered that it was possible to obtain medicines required in cases of illness outside the statutory hours. Pharmacists were in favour of a provision to deal with cases of illness, but they were of opinion that the existing exemption met the public needs.

The Doctor's Evening Consultation.

In reply to questions, Mr. Mallinson said that pharmacists had to wait for the evening consulting hours of doctors and that meant that they were tied. Closing hours of 7 or 8 P.M. would not suit them because the doctors did not see their evening patients till between 6 and 7 P.M., and their prescriptions had to be dispensed after that. Mr. Martin said that there was no necessity for a later closing hour on Saturdays. Doctors did not, as a rule, see many patients on Saturday nights. In most towns there were a sufficient number of chemists living on their business premises to dispense medicines required after regular hours. Mr. Mallinson explained that if a chemist was on the National Health Insurance panel, even if he did not live on the premises, a notice was posted up showing where medicines could be obtained when the shop was closed. There was no such provision if the chemist was not on the panel.

Replying to further questions, Mr. Martin said that doctors knew where prescriptions could be dispensed in cases of emergency. They directed their patients accordingly, and it was the business of the chemist as a rule to see that the doctors understood that there was a service available.

The CHAIRMAN: Where the doctor's surgery hours close at 7, is there sufficient time for a member of the public to get his prescription made up before the chemist's closing hour at 8?—Yes, generally speaking.

Where the surgery hours are later is there sufficient time?—Not always; it depends on circumstances.

The witness added that he had never heard of any complaints that the closing hours so far as prescriptions were concerned were too early. He was not aware that any complaints had been made to the Minister of Health on the subject. It was part of their duty as a national organisation to negotiate with the Ministry of Health in connexion with National Health Insurance. In that connexion from time to time the question of evening surgery hours had been raised, but it had never arisen in the form of a complaint from the Ministry that insured persons were unable to get their medicines. Although the shop closed at 8 P.M. prescriptions were accepted in the majority of cases in the same way as if the shop was open. Where it happened that the doctors had later consulting hours the chemists accommodated themselves to those hours.

TRANSATLANTIC FLIGHT.

Two continents were thrilled early in the week by the successful flight of the young American, Capt. Charles Lindbergh, from New York to Paris without alighting. In a sense his journey was not such a feat of endurance as that of his predecessors, Captain J. Alcock and Lieutenant A. W. Brown, who made the crossing in June, 1919, for Captain Lindbergh sat in an enclosed cabin protected from the weather and removed from the intolerable roar of the screw; but the distance he traversed was nearly double that of the previous transatlantic flight, and through every minute of the 33½ hours during which he was in the air all his senses must have been alert and attentive to the slightest stimulus; for although he had for the most part favouring wind, yet he had to traverse prolonged belts of fog extending upwards from the sea to any navigable altitude. Travelling alone, he was able to save the weight of a companion, but even then was so hampered by the gross weight of fuel for the long non-stop journey that his initial speed was well under 100 miles an hour, although it quickened to something like 105 miles an hour at the end. On the average, however, he travelled more slowly than his predecessors. His exploit should perhaps be regarded less as a feat of endurance than as an almost birdlike adaptation to the medium in which he was travelling. He carried with him only the simplest instruments designed and partly executed by himself, and his charts were of the simplest, while his vestibular sense was evidently better than those of his predecessors, who admitted that they were often unaware when their vertical direction was changing. His sense of horizontal direction seems not to have been impaired in the least by the absence of direct vision, for his position in the fuselage made him

dependent upon the periscope to see his direction. After his continuous flight of more than 33 hours he was still so much master of the situation as to circle several times over the Paris landing station before descending on ground made dangerous by the enthusiasm of an enormous crowd. He complained somewhat of stiffness of the limbs and his eyes were reddened, but he certainly was not deaf on dismounting, an affection which his predecessors had experienced. Opportunity to satisfy an enormous thirst and ten continuous hours of sleep appear to have sufficed to wipe out the travail of his journey. While all must be sensible of the skill, courage, and endurance displayed, the exploit, so happily terminated, is hardly likely to have the bearing on the progress of civilian flying which is being claimed for it by enthusiasts. No one can believe that the heavier-than-air machine is likely to make routine journeys over seas so extensive as to be practically deserted, as far as rescues in accident are in questioni.

THE HYGIENE OF A PLEASURE STEAMER.

WE were lately asked to visit the *Crested Eagle*, belonging to the General Steam Navigation Company, as she has been refitted before again taking up her daily summer trips from the Tower (9.30 A.M.) to Margate (2.30 P.M.), and return. A ship of 1150 tons, she was built by J. S. White, of Cowes, and is 300 ft. long and 68 ft. across her paddle-boxes. She draws 6½ ft., has oil-fired engines of 3500 h.p., a speed of 18¼ knots, and carries 1702 passengers, whose convenience and safety has been in every way considered. The wide upper deck has a small smoking saloon, and 50 seats for over 400 passengers, each seat being available in emergency as a life-raft. The saloons on the main and lower decks are well ventilated on the plenum system by three thermotanks, which heat the air to the desired temperature; directing nozzles prevent any unpleasant draught. The large dining saloon forward has a line of great windows on each side, and two large uptakes assist the ventilation. They afford a full view of the river during meals. The grill-room below accommodates 50 people, and is kept cool by an uptake to a Boyle's ventilator on the upper deck. On the main deck, too, is the kitchen, which is very compact and has a large uptake ventilator, and also a soda fountain. Here, too, are satisfactory, well-lighted lavatories for male passengers. At the after-end is the main saloon, with seats for 125, and at its end is the ladies' cabin, doubled in accommodation this year, well-lighted and ventilated, and with an automatic towel supply. Below this a tea-room and a bar, with supply ventilation, and in each case three uptakes to the upper deck. All these saloons have life-belts —1800 are carried—under the seats.

The accommodation for the crew is also good and well-ventilated. Their lavatories show advance and are white-painted throughout. The w.c.'s are in white enamelled ware, but the fittings for latrine paper were broken and neglected, a douche for the firemen was unused, and the white-enamelled wash-basins were less of a credit than they would have been had a smoother surface made them more easily cleaned

The Company is to be congratulated on the care it has devoted to the hygiene of the ship.

SYNTHALIN.

Dr. R. Carrasco Formiguera, director of a sanatorium for diabetics at Barcelona, has recently given an account[1] of his experiences with synthalin, a synthetic substitute for insulin, which was discovered by Dr. E. Frank, of Breslau,[2] and is said to be efficacious when administered by the mouth. Dr. Formiguera claims to be the first physician outside Germany to use this preparation, having obtained it on a special visit to that country. He describes 34 cases, and concludes that in the treatment of diabetes synthalin should prove to be a valuable adjunct to insulin, though it does not replace it except in mild cases, dietary restriction being required as well. In cases of moderate severity synthalin may make it possible to dispense with much of the insulin dosage. In severe cases complete substitution is impossible because the doses of synthalin required to control the sugar cannot be tolerated. In cases of threatening or actual coma, its slowness of action makes it almost useless. The differences in the reaction of individuals to the drug are remarkable, and intolerance was very noticeable in Dr. Formiguera's cases. Five could not tolerate synthalin at all, nine bore it badly in doses large enough to be effective, whilst 20 took it well. As a rule women show less tolerance than men. The disturbances are mainly digestive and are probably vagal in origin, Dr. Formiguera considers, as they occur equally after injection. There may be anorexia, nausea, vomiting, abdominal pains, and diarrhœa, and there is often much depression. Owing to cumulative action they may appear some time after treatment is begun. The ill-effects, he says, can sometimes be modified by giving camphor monobromide, menthol valerianate, oil of peppermint, or similar drugs, but their action is uncertain. The ill-effects with ordinary dosage as a rule disappear within 24 hours and leave no sequelæ. The existence of renal, circulatory, or digestive troubles does not appear to be a contra-indication to the use of synthalin.

[1] Revista Médica de Barcelona, March, 1927.
[2] THE LANCET, 1927, i., 35.

LEBANON HOSPITAL FOR MENTAL DISEASES.

THE twenty-eighth annual meeting was held at Friends House, Euston-road, London, on May 19th, Dr. E. W. G. Masterman, chairman of the General Committee, presiding. Dr. H. Watson Smith, who has directed the hospital for the last 17 years, personally presented his medical report. The number of patients under care during the year had risen, he said, from 230 to 308 (176 men, 132 women), the hospital being now seriously handicapped for lack of accommodation. Fifty-six patients were discharged completely recovered, and 47 improved. Among the patients many nationalities, religions, and classes were represented, from the richest to the destitute. Regular instruction in mental diseases had been given by Dr. Watson Smith to classes of students from the American University, Beyrout, and several fifth-year students (Egyptian, Syrian, and Greek) had taken resident courses of clinical study. Major J. W. Mackinnon, R.A.M.C., and Lieut.-Colonel H. G. L. Wortabet, I.M.S. (retd.), bore witness to the pressing need for this hospital in Syria, where it is still the only mental hospital, and Dr. A. J. Manasseh, of Brumana, expressed the thankfulness of Syrian medical men at having this model hospital available for their patients; the constant development in the laboratory and elsewhere astonished him at each visit. Dr. F. H. Edwards, late superintendent of Camberwell House, referred to the pioneer work of Tuke and others in substituting for imprisonment and worse—still to be seen in some countries —the good conditions and scientific treatment given to mental invalids in England to-day. The results at Asfuriyeh were excellent, partly owing to the number of acute early cases admitted. Altogether, 2877 patients had now received care and treatment there, of whom 1479 had been discharged either cured or improved. Archdeacon Beresford Potter, late of Cyprus, commended the international and interdenominational lines on which the hospital was conducted. The new report, giving the latest statistics, with tables showing kinds of insanity dealt with and occupations of the patients admitted, will be ready shortly, and can be obtained from the secretary, at 139, Marylebone-road, W. 1.

SCIENTIFIC SIMPLICITY IN PHOTOGRAPHY.

UNDER this title Messrs. Burroughs, Wellcome and Co., Snow-hill Buildings, London, E.C. 1, have issued a little book showing the advantages of using "Tabloid" chemicals and containing many hints for the successful pursuit of the photographic art. The modern technique of desensitising, which to a large extent abolishes the use of the dark room, is fully and simply explained, exposure and development are dealt with at length, and there are numerous tables covering all classes of films and plates. Copies will be sent post free on application.

MAORI NAVIGATION.

IN an account of an address by Dr. Peter Buck (Te Rangi Hiroa) to the Australasian Medical Congress (THE LANCET, May 7th, p. 990) it was stated that amongst the feats of Maori seamanship in the Stone Age was the voyage from Hawaii to New Zealand across some 60° of latitude. We are informed that this is incorrect and that the voyage was from Hawaiki to Tahiti, a distance of between 2000 and 3000 miles, of course with stoppages at other islands on the way.

THE LATE DR. RICHARD GRIFFITH.—At the age of 53 Dr. Richard Griffith died at Carnarvon on May 21st after a brief illness. He was the eldest son of the late Dr. Samuel Griffith and was educated at Clifton and Clare College, Cambridge. After qualifying as M.R.C.S. Eng. from the London Hospital in 1902 he settled at Portmadoc, where his father also was in practice. During the late war he held a captain's commission in the Royal Welsh Fusiliers and was present at the landing at Suvla Bay in 1915. After being wounded and invalided home he was transferred to the Royal Army Medical Corps, and served in Egypt, Mesopotamia, and Palestine. He was twice mentioned in despatches and gained the rank of brevet lieut.-colonel. Dr. Griffith, like his father, was a justice of the peace for the county of Carnarvon, and he was a medical referee for the Ministry of Pensions. He recently gave the site for a new hospital to the town of Portmadoc.